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USSR Report

TRANSPORTATION

No. 29



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18 December 1980

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CONTENTS

AIR

Civil Aviation Problems Discussed at Conference (VOZDUSHNYY TRANSPORT, 25 Oct 80).....	1
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MOTOR VEHICLE

Presidium of RSFSR Supreme Soviet Promulgates Ukase on Road Construction (VEDOMOSTI VERKHOVNOGO SOVETA RSFSR, 24 Jul 80).....	4
Planning in Motor Vehicle Transport (Ya. Roytman; KHOZYAYSTVO I PRAVO, Sep 80).....	8
Measures To Improve Road Construction Examined (Editorial; PRAVDA, 11 Sep 80).....	14
Use of Containers in Belorussia (V. Yefanov; SOVETSKAYA BYELORUSSIYA, 23 Oct 80).....	16
New Kazan'-Naberezhnyye Chelny Highway (Ye. Ukhov; TRUD, 25 Oct 80).....	21
Briefs	
KamAZ Truck Production	23
Armenian Highway	23
Vehicle Computer Testing	23
YAMZ-840 Diesel Motor	23
ZIL Plant's Superheavy Presses	24
Lithuanian Highway	24
D-181T Diesel Engine	24
New 'KamAZ' Truck Model	24
Transporting Structural Components	25

RAILROAD

Classification Yard Arrangements for Longer, Heavier Trains (L.V. Abuladze; ZHELEZNODOROZHNYI TRANSPORT, No 9, 1980).....	26
Electric and Diesel Traction in Industrial Transport (V.A. Dmitriyev; ZHELEZNODOROZHNYI TRANSPORT, No 10, 1980)...	33
Problems in Using Heavier Trains (I. Kekulin; GUDOK, 14 Oct 80).....	40
Problems in Sending Small Shipments (G. Gordin; KHOZYAYSTVO I PRAVO, Sep 80).....	45
Technological Reserve of Idle Cars (V.A. Kudryavtsev; ZHELEZNODOROZHNYI TRANSPORT, No 10, 1980).	55
Briefs	
New BAM Passenger Traffic	64
Locomotive Repair Plans	64

OCEAN AND RIVER

Larger Passenger Fleet Needed for the Ukraine (M. Garagulya; RABOCHAYA GAZETA, 14 Oct 80).....	65
Repair of a Bulk Tanker: Documents and Commentary (V. Merem'yanin; MORSKOY FLOT, No 10, 1980).....	67
Delays in Handling Grain Shipments (V. Lisakov; VODNIY TRANSPORT, 9 Oct 80).....	72
Briefs	
Ocean Research	74
High-Volume Passenger Transport	74
New Marine Channel	74
Introduction of Efficient Die	75
New Oil-Ore Carrier	75
New Unloading Equipment	75
New River Transport System	75
River Transport by Catamaran	75
Kerch' Supertanker Construction	76

AIR

CIVIL AVIATION PROBLEMS DISCUSSED AT CONFERENCE

Moscow VOZDUSHNYY TRANSPORT in Russian 25 Oct 80 pp 1-2

[Unattributed article: "From Broad Party Positions: Report-Election Party Conference of the Ministry of Civil Aviation"]

[Excerpts] The 3d report-election conference of the party organization of the Ministry of Civil Aviation took place on 22 October.

A new surge of political and labor activeness was generated in the aviation workers by decisions of the October 1980 CPSU Central Committee Plenum and the speech at the plenum by CPSU Central Committee General Secretary, Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev.

Conference delegates listened with great attention to the speech by Minister of Civil Aviation and CPSU Central Committee member B. P. Bugayev.

Participating in the conference were V. V. Kuz'kin, chief of a sector of the CPSU Central Committee; V. S. Dobychin, chief of the department of transportation and communications of the Moscow City Committee of the CPSU; and N. P. Yakovlev, secretary of Frunzenskiy Raykom of the CPSU.

A. I. Diyazhev, secretary of the party committee of MGA [Ministry of Civil Aviation], gave a report at the conference.

The state of affairs in the economy is customarily considered one of the chief criteria in assessing party work. But here, despite certain achievements, there unfortunately also are shortcomings. In particular, noted the briefer, the production plan for air transportation for nine months of 1980 in the basic indicator of passenger turnover was not fulfilled. During the four years of the five-year plan the operating enterprises did not ensure fulfillment of quotas for an increase in labor productivity. Scheduled quotas in capital construction are not being fulfilled. Regularity of flights is below the planned level.

The party committee considers that insufficient supervision over progress in fulfilling the plan on the part of party member-managers and party organizations of corresponding administrations is one of the primary reasons for the existing situation in the sector.

Ensuring flight safety is a very important component of the work of civil aviation. The broad range of issues connected with this, one of the basic indicators of the sector's work, is examined systematically and thoroughly, with inherent communist self-criticism, at sessions of the ministry's collegium and party committee.

In the past two years the party committee has heard accounts from a number of chiefs of administrations and departments of the MGA and from secretaries of party organizations. The role of the Flight Service Administration and the ministry's Inspectorate is not being fully manifested in the matter of strengthening flight discipline in aviation enterprises. The effectiveness of preventive measures still is low.

It was noted in the report that the Flight Service Administration still is weak in exercising supervision and gives insufficient help in outlying areas in organizing flight and flight methods work. The positive experience present in the sector essentially is not being generalized or adopted in practice.

In 1980 the passenger turnover will double in comparison with 1970, passenger departures will increase 44 percent, and cargoes and mail will increase 60 percent. Aeroflot has advanced to the level of stably paying its way.

(From report of MGA party committee.)

In evaluating the work of the collective of the Air Traffic Administration, problems were mentioned which disturbed the party committee and all MGA party members. Concern is caused by the condition of political indoctrination work, the level of labor discipline and high turnover of personnel in traffic service collectives. And there is practically no competition to enter civil aviation educational institutions in the UVD [air traffic control] profile. The report noted that party members not only of the UDS [Air Traffic Administration], but also of the UPVR [Administration for Political Indoctrination Work], the UUZ [Administration of Educational Institutions] and the Personnel Administration must have their say here.

Party members in the apparatus of Gosavianadzor [exact expansion unknown] and Gosaviaregistr [exact expansion unknown] are making a certain contribution to ensuring high quality of flights. Several days ago during its session, the party committee heard a report by the secretary of this party organization, I. Faleyev. The talk was of indoctrinating cadres and improving their work of preventing flying incidents in civil aviation.

The MGA collegium and party committee also discussed the work of the GUERAT [exact expansion unknown] collective. Decrees of the collegium and resolutions of the ministry's party committee became important stages in the practical work of the GUERAT collective and its party organization in the struggle for ensuring flight safety.

The unfavorable situation with capital construction in the sector was subjected to acute, fundamental criticism in the report.

It was noted in the report that tasks facing civil aviation can be accomplished successfully only on the basis of accelerated development of science and technology. The collectives and party organizations of NTU [Scientific-Technical Administration], UREO [Administration of Radio-Electronic Equipment] and TsUERTOS [Central Administration for Operation of Radio-Technical Equipment and Communications] are doing much to ensure that the sector advances to forward technical levels and to ensure that new aviation and ground equipment entering operation corresponds to the best world achievements.

At the same time, the work of party members of these subunits still is not fully concentrated on the resolution of a number of the most important, key problems and, above all, those involving an acceleration of the growth in labor productivity and an assurance of regularity and high quality of flights.

A major section of the MGA Party Committee report was devoted to an analysis of work with personnel and the status of ideological indoctrination work in the ministry's apparatus.

In the years of the 10th Five-Year Plan more than 500 million passengers and some 14 million tons of urgent national economic cargoes and mail will be transported on the air routes of Aeroflot and more than 450 million hectares of lands will be treated from the air by the aviation-chemical method.

(From the MGA Party Committee report.)

Yu. Darymov, chief of the Administration of Educational Institutions, emphasized in his speech that the need for increasing party exactingness on personnel was noted at the October 1980 CPSU Central Committee Plenum. Party members in the administration have performed much work of training diplomaed specialists. But each year up to 2,000 persons are dismissed from Aeroflot's educational institutions and plans for acceptance into the sector's educational institutions in Siberia, the Far East and the Transcaucasus are not being fulfilled from year to year. This imposes a great responsibility on party members of the UUZ to improve further the professional training and indoctrination of Aeroflot's young replacements.

6904

CSO: 1829

MOTOR VEHICLE

PRESIDIUM OF RSFSR SUPREME SOVIET PROMULGATES UKASE ON ROAD CONSTRUCTION

Moscow VEDOMOSTI VERKHOVNOGO SOVETA RSFSR in Russian No 30, 24 Jul 80
pp 636-638

[Ukase No 893 of the Presidium of the RSFSR Supreme Soviet on Introducing Amendments and Additions to the Ukase of the Presidium of the RSFSR Supreme Soviet "On the Participation of Kolkhozes, Sovkhozes, Industrial, Transport, Construction and Other Enterprises in Road Construction and Maintenance"]

[Text] The Presidium of the RSFSR Supreme Soviet hereby resolves:

1. To introduce into the Ukase of the RSFSR Supreme Soviet, dated 7 April 1959, "On the Participation of Kolkhozes, Sovkhozes, Industrial, Transport, Construction and Other Enterprises and Economic Organizations in Road Construction and Maintenance" (VEDOMOSTI VERKHOVNOGO SOVETA RSFSR, 1959, No 14, Art 241; 1961, No 1, Art 2; 1972, No 30, Art 751) amendments and additions proceeding from the USSR Constitution, the RSFSR Constitution, and the Ukase of the Presidium of the USSR Supreme Soviet, dated 14 April 1980, "On Introducing Amendments and Additions to the Ukase of the USSR Supreme Soviet "On the Participation of Kolkhozes, Sovkhozes, Industrial, Transport, Construction and Other Enterprises and Economic Organizations in Road Construction and Maintenance," having approved its new redaction.
2. To direct the RSFSR Council of Ministers to introduce into the decisions of the Government of the RSFSR the amendments and additions proceeding from the present Ukase.
3. That the present Ukase shall take effect on 1 January 1981.

Chairman of the Presidium of the RSFSR Supreme Soviet M. Yasnov

Secretary of the Presidium of the RSFSR Supreme Soviet Kh. Neshkov

Moscow, 18 July 1980

Ukase of the Presidium of the RSFSR Supreme Soviet "On the Participation of Kolkhozes, Sovkhozes, Industrial, Transport, Construction and Other Enterprises and Economic Organizations in Road Construction and Maintenance"

In accordance with the Ukase of the Presidium of the USSR Supreme Soviet, dated 26 November 1958 "On the Participation of Kolkhozes, Sovkhozes, Industrial, Transport, Construction and Other Enterprises and Economic Organizations in Road Construction and Maintenance," the Presidium of the RSFSR Supreme Soviet hereby resolves:

1. That into participating in the construction, modernization, repair and maintenance of local roads (including oblast roads) there shall be drawn all kolkhozes, sovkhozes, industrial, transport, construction and other enterprises and economic organizations, regardless of their subordination, whether they be located in rural areas or in cities.

2. Participation in road operations shall be expressed in the execution by the kolkhozes, sovkhozes, enterprises, and economic organizations of the amount of work established for them at their own expense, either by the cost-accounting or the contractual method.

The ispolkoms (executive committees) of the rayon, oblast, and kray Councils of People's Deputies and the Councils of Ministers of the autonomous republics shall be accorded the right in exceptional cases to permit individual kolkhozes, sovkhozes, enterprises and economic organizations, upon their petitions, to participate in road operations by means of monetary contributions in the amount of the estimated cost of the operations which are scheduled to be completed. Moreover, if the industrial, transport, construction and other state enterprises and economic organizations (except for sovkhozes and other state agricultural enterprises and organizations, procurement, trade, and supply and marketing organizations) shall participate in road operations by means of monetary contributions, the outlays for these purposes should not exceed 0.3 percent of the volume of production output, work performed, or the services of these enterprises and organizations.

3. The volume of work for each kolkhoz, sovkhoz, enterprise and economic organization drawn into participation in the construction, modernization, repair and maintenance of local roads (including oblast roads) shall be determined in the following manner per year:

a) for kolkhozes--by the work performed (output) from four to six daily norms for each able-bodied member of the kolkhoz and from two to four daily norms for each truck, tractor, excavator, hoisting machine, piece of earth-moving and road equipment, and for each unit of animal traction power belonging to the kolkhoz;

b) for sovkhozes--by the work performed (output) from three to four daily norms for every truck, tractor, excavator, hoisting machine, piece of earth-moving and road equipment belonging to them;

c) for state agricultural enterprises and organizations (except for sovkhoses) by the work performed (output) from three to four daily norms for each truck, tractor, excavator, hoisting machine, earthmoving and road equipment, but not less than 0.3 percent of the annual volume of production output, work performed, or the services of these enterprises and organizations;

d) for commercial timber farms, industrial, transport, construction and other enterprises and economic organizations--by the work performed (output) from six daily norms for each truck, tractor, excavator, hoisting machine, piece of earthmoving equipment, but not less than 0.3 percent of the annual volume of production output, work performed, or the services of these enterprises and organizations;

e) for enterprises and economic organizations which do not possess trucks, tractors, excavators, hoisting machines, earthmoving and road equipment--by an amount equivalent to 0.3 percent of the production output, work performed, or the services of these enterprises and organizations;

f) for procurement, trade and supply and marketing organizations--in an amount equivalent to 0.02 percent of the annual turnover (not including the turnover for public dining).

4. The construction, modernization, repair and maintenance of internal roads of kolkhoses, sovkhoses, commercial timber farms and other agricultural and lumbering enterprises and organizations shall be the responsibility of these kolkhoses, sovkhoses, enterprises and organizations.

The construction, modernization, repair and maintenance of roads which are the side roads to industrial, transport, construction and other enterprises and economic organizations shall be the responsibility of these enterprises and organizations.

5. The one-year plans for the construction, modernization, repair and maintenance of local roads (including oblast roads) with the participation of kolkhoses, sovkhoses, enterprises, and economic organizations shall be drawn up for each rayon by the ispolkoms (executive committees) of the rayon-level Councils of People's Deputies and shall be approved by the ASSR Councils of Ministers, as well as by the ispolkoms of the kray and oblast Councils of People's Deputies.

On the basis of these approved plans, each kolkhoz, sovkhaz, enterprise and economic organization shall be presented with a one-year plan, providing for the places, volumes and time periods for the work to be completed.

Kolkhoses, sovkhoses, enterprises and economic organizations shall include these tasks in their own one-year production and finance plans.

6. For refusing to participate in road operations the ispolkom (executive committee) of a rayon, oblast, or kray Council of People's Deputies, or the Council of Ministers of an autonomous republic shall impose a fine on the kolkhoses, sovkhoses, enterprises and economic organizations in an amount

of up to 50 percent of the estimated cost of the operations left incomplete and on their directors in an amount of up to 40 rubles.

The payment of a fine shall not free such a person or organization from the obligation to complete an established task with regard to participation in road operations.

7. The monetary sums contributed by the kolkhoses, sovkholes, enterprises and business organizations within the procedure of participating in road operations (Article 2), as well as the sums assessed as fines for refusal to participate in road operations (Article 6) shall be put into special accounts of the local road organs and expended on the construction, modernization, repair and maintenance of local roads (including oblast roads).

The redistribution of these sums among the autonomous republics, krais and oblasts for the purpose of guaranteeing the financing of operations with regard to the construction, modernization, repair and maintenance of local roads (including oblast roads), as provided for by the RSFSR State Plan (Gosplan) for Economic and Social Development, shall be carried out in accordance with the procedure established by the RSFSR Council of Ministers.

Of the above mentioned monetary sums, with the permission of the USSR Councils of Ministers and the ispolkoms (executive committees) of the kray and oblast Councils of People's Deputies, no more than 20 percent can be spent to acquire means of transport and road-building equipment, as well as on the development of a production center for the road organizations and on the payment of planning and surveying operations. From these same sums working capital shall be allotted, within the limits of the established norms, to the repair and repair-construction organizations of the system of the RSFSR Ministry of Roads which carry out work in the construction, modernization, repair and maintenance of local roads (including oblast roads).

2394

GSC: 1829

MOTOR VEHICLE

PLANNING IN MOTOR VEHICLE TRANSPORT

Moscow KHOZYAYSTVO I PRAVO in Russian No 9, Sep 80 pp 26-29

[Article by Ya. Roytman, sector chief, Scientific Research Institute of Construction Organization and Control, candidate of technical sciences: "The Level of Transport Servicing"]

[Text] A considerable role today in improved construction effectiveness has been assigned to trucking, which is tasked with a share of up to 90 percent of the total transfer volume. Delivery of structurals, components, and materials from where they are produced to construction sites and even to the work places themselves will become a part of the overall construction technology.

Therefore, rhythmicity, quality of the builders' work, and labor productivity greatly depend upon the level of transport servicing. In turn, optimal use of transport is greatly determined by the system which controls it at the construction site, by cost accounting interrelationships among construction organizations and trucking enterprises (ATP), by the system of work appraisal indicators, and by the way their economic incentive funds are generated. And, the making of decisions optimal from the point of view of the system of construction production overall in various situations depends upon the extent this system of appraisal indicators brings ATP cost accounting interests in line with the interests of the organizations they are servicing.

If timely and complete satisfaction of the needs of construction production for delivery of components and materials, given most effective use of labor and financial resources, is the basic task of trucking enterprises, then the final results of ATP operations must be evaluated primarily by the degree of satisfaction of such needs.

At present the work of trucking enterprises in construction is evaluated by the received profit and by the level of profitability. The collective's economic incentive fund also is generated depending on these factors. The basic planning indicators here are the volume of transported freight, distance, and tasking to deliver the freight to so-called mandatory clients. The main task for ATP is compliance with these three conditions. Plan fulfillment, and thus the bonuses for workers, depends upon them.

However, fulfillment of tasking to ship freight for the mandatory clientele from the aspect of month, quarter, and year certainly does not mean that the delivery of components and materials was accomplished in full complement and on time in

accordance with the schedule and production technology. Meanwhile, the latter circumstance has especially important significance for construction.

Therefore, the growth of profit and the level of profitability only then can serve as objective criteria of ATP operations when they facilitate the work of builders and they reduce transportation costs to the latter. However, this is not happening at the present time. The growth of ATP profit is not linked with an improvement in transport servicing of construction organizations. Actually, as strange as it may seem, ATP receive a profit from irrational shipments and, let's face it, sometimes from overstating freight volumes and runs in freight and vehicle documents. Irregularity of shipment tariffs impels truckers to move not freight actually needed by builders, but freight more advantageous for themselves and for their organization. They need ton-kilometers at all costs. And, they usually view their partner-builder through the prism of these indicators.

The level of transport servicing, in our view, also must become a basic appraisal indicator of ATP operations in construction. This integrated indicator must include: fulfillment of the plan assignment for moving freight for the so-called mandatory clientele, timeliness of providing service to organizations based upon their orders, including daily orders--for shipment of freight according to an hourly schedule, fulfillment of the construction and installation operations plan by sites and by stages.

Based upon the goals and tasking of ATP functioning in construction and of requirements levied for their work, in our view it is advisable to approve the following indicators: volume of shipments, by mandatory clientele, in tons; level of transport servicing of construction; volume of work computed in rubles of income; labor productivity growth; salary norm per ruble of income; adjusted production cost of transport operations in kopecks per ruble of income; profit computed in rubles.

Remaining indicators can be worked out by trucking enterprises themselves and employed in the capacity of accounting indicators during the planning process.

The level of construction's transport servicing and the adjusted production cost are appraisal indicators and, consequently, are fund-generating indicators. ATP profit serves as a source for the generation of economic incentive funds.

The approaches enumerated above manifested themselves in the methodological directives on use of the new system of appraisal indicators for ATP construction operations and generation of economic incentive funds developed by the NIIOUS [Scientific Research Institute for Organization and Control of Construction] at the MISI [Moscow Construction Engineering Institute imeni V. V. Kuybyshev] and approved by the USSR Gosplan Interdepartmental Commission

In accordance with a 10 June 1976 USSR Gosplan Interdepartmental Commission decision, experimental implementation of the new system of appraisal indicators for ATP operations proposed by the Moscow Construction Engineering Institute imeni V. V. Kuybyshev was carried out by our institute at Motor Vehicle Base No. 4 in the Dzerzhinskiy Construction and Installation Trust, Glavvolgavyatskstroy [Main Administration for Volga-Vyatka Construction], USSR Ministry of Construction.

In the main, the results of the experiment were positive. There was definite interest on the part of the motor vehicle base's collective to move freight in full complements to sites in strict accord with the scheduled construction and installation operations. The new system brought the cost accounting interests of the truckers and builders noticeably closer and united their efforts to achieve end results. Labor productivity and efficiency in construction improved. This gives witness that the new system of appraisal indicators for ATP operations meets the needs and tasking laid down by the well-known CPSU Central Committee and USSR Council of Ministers decree on improving the economic mechanism.

Concurrently, the experiment revealed a number of major deficiencies in today's planning.

The sectorial norms of shipment volume per 1 million rubles of construction and installation operations now employed are too complicated to be used as the basis to determine the needs of specific construction organizations for vehicle shipments. At present, therefore, the volume of freight shipment for mandatory clientele is being planned based upon data for an accounting period taking into account the growth (decrease) in construction and installation operations, but without considering structural shifts in construction, changes in the products list, and conditions for delivering components and materials to sites.

It is quite evident that the volume of shipments to the mandatory clientele approved in the ATP plan for the year with breakdowns by quarters bears a probable character. This in practice also leads to a requirement for systematic refinement and correction of quarterly and monthly plan taskings.

"Rigid" planning of shipments gives rise to a contradiction between the interests of the ATP and the construction organizations being serviced. This causes harm to the national economy and to trucking enterprises. What is the solution?

As we see it, we must plan limits in the volume of shipments for the mandatory clientele based upon the possibilities and needs of construction organizations and enterprises. Then, for ATP the shipments called for in the plan will become mandatory, but for construction organizations they will signify only the limit of the possible demands made on truckers when concluding agreements and when coordinating quarterly and monthly transport servicing plans. And, here is what happens in actuality.

The collective at Motor Vehicle Base No. 4, where the experiment was conducted, achieved a considerable rise in the level of construction servicing and a reduction in transport costs due to an increase in the quality and timeliness of shipping order fulfillment and due to improvement in the accounting for work actually accomplished. However, the transport servicing plan here turned out to be underfulfilled since the shipping organizations reduced the volume of their operations. Motor vehicle base .TR [engineering and technical workers] and employees received no bonuses.

But, the situation would have been completely different if a planned limit of the volume of shipments for the builders had been established for the ATP. Then, the results of motor vehicle base activities would have been evaluated primarily based upon fulfillment of orders for freight delivery. Plus, the fact that the

construction organizations being serviced did not use up the limits when their orders were completely and satisfactorily met would not have been blamed on the motor vehicle base collective. Moreover, if the lack of full utilization results from an improvement in the transport delivery scheme and an increase in freight safety, then this is nothing other than the truckers' success, the result of their creative work, which deserves praise rather than condemnation.

Transition from "rigid" planning to establishment of limits on the volume of shipments to the mandatory clientele will become a practical possibility, given evaluation of the results of ATP operations based upon the level of transport servicing.

The use of limits increases rather than rules out the significance of agreed obligations to deliver freight. Implementation of the new system presupposes an improvement in the level of operational planning and organization of transport control, and implementation of daily accounting of fulfillment of orders for freight delivery to construction sites, including according to an hourly schedule. Also, it presupposes more careful regulation of interrelationships between ATP and construction organizations.

At the same time, the system requires of construction organizations and enterprises an increase in the level of production preparation, a fundamental improvement in operational shipment planning, streamlining the ordering system, and reinforcing the financial responsibility of persons who order transport and the authenticity of their orders.

A cargo delivery agreement specifies the volume and working conditions of the transport and it regulates the interrelationships of the parties and their responsibility. ATP must be responsible for non-fulfillment of shipments and their partners for non-presentation of freight for shipments in the volumes envisioned by the agreement. And, what is very important, in the agreement itself builders' needs for transport must be realistic and computed exactly. A positive difference between the designated requirement and the actually fulfilled shipment volume is evidence of a reduction of transport costs in construction and a unique indicator of ATP operations.

Operational planning in an ATP begins with determination of the shipment volume and the freight products list for the forthcoming day. And, the volume of subsequent work is made up of weekly schedules and daily orders. Meanwhile, the construction organizations being serviced, as strange as it may seem, bear no responsibility for the authenticity of their own orders. It is no accident that working up the system of orders for freight shipment became one of the most complicated moments in the experiment conducted.

In accordance with Trucking Regulations, an ATP bears financial responsibility for failure to move freight in the volumes envisioned in the monthly (10-day) plan, but the trucking customer financially is responsible for failure to provide the freight to be shipped. But, these statutes are violated all the time everywhere, all the more so because these regulations do not envisage sanctions for violation of the products list of the shipped freight.

Therefore, strict sanctions are necessary to increase a customer's responsibility for the authenticity of orders. It should be noted that the very struggle that the collective at Motor Vehicle Base No. 4 waged to make every order realistic more than anything facilitated a reduction in instances of inflating in line documentation freight volumes and vehicle runs.

Recently, in order to rule out additions, a new system of filling out trip logs and freight invoices has been introduced that unconditionally increases ATP and trucking customer responsibility. However, one cannot ignore the fact that the main reason for inflating shipment volumes and distances in line documentation lies in above-norm vehicle layovers because freight is not ready for shipment.

Naturally, above-norm layovers mean a conflict with drivers whose work, as is known, is compensated for based upon piece rates (the number of ton-kilometers completed). And, although fines are collected from the guilty parties for above-norm vehicle layovers, the wages of the drivers do not increase on account of this.

Inflating shipment volume and distances in the documentation serves as a form of compensation to the driver's wages, the reduction of which occurs due to improper shipment planning and poorly organized freight handling operations. It is no accident that often one encounters a note: "shipment of construction rubbish, dirt. . . ." Thousands of tons of rubbish?! In actuality, this notation is made to avoid "offending" the driver. Rubbish is non-commercial freight and its shipment need not be reflected in freight invoices. It would seem that levying sanctions for non-presentation of freight ordered for shipment to a considerable degree would facilitate a reduction in transport costs.

Elimination of irrational shipments and liquidating fraudulent freight volumes and extra mileage in documents undoubtedly must lead to freeing some of the trucks which, it seems to us, could be used to service non-mandatory clientele. In the interests of ATP economy, of course. But, diversion of departmental transport for the needs of outside organizations, it turns out, categorically is forbidden to construction ministries. And, this is a shame. This prohibition does not facilitate a growth in labor productivity and the effectiveness of the work of trucking enterprises. And, our experiment confirmed this.

It also revealed the imperfection of extant tariffs for shipment of construction freight. The volume of income per worker or the productivity of labor in ATP collectives are provided by tariffs in such a way that in actuality they do not stimulate the implementation of any kind of innovations to improve shipment conditions, to reduce the operating time of the vehicles, and so on. It is important that truckers haul more freight farther. For builders, it is specific freight to a specific place at the specified hour.

For example, the necessity arose to increase the proportion of trucks paid for by the hour from 11 to 25 percent when the new system of appraisal indicators was introduced in order to increase the reality of orders for cargo shipments and of the fulfilled volume of transport operations. This would lead to a significant reduction of transport costs in construction. However, the increase in the proportion of trucks paid for by the hour promptly would reduce the overall volume of ATP income and, consequently, labor productivity as well.

Why? Because income for the ATP from trucks paid for by the hour is lower by a factor of 2-2.5. Accordingly, the wage norm, which is lower for the piece rate driver than for the by-the-hour driver, also drops.

The tariff imperfection also gives rise to contradictions between the interests of construction production on the one hand and those of trucking enterprises on the other. It is more advantageous for ATP to use trucks paid the piece rate even when accounting for the actually completed shipment volume is impossible, when due to technological conditions the transport is down more than 50 percent of its operating time awaiting loading and unloading. Is this rational? Certainly not.

Naturally, the level of transport servicing as an indicator of ATP operations cannot solve all the problems arising in capital construction. But, in our view, its implementation will facilitate accomplishment of the tasks levied by the CPSU Central Committee and USSR Council of Ministers decree "On Improving Planning and Intensifying the Influence of the Economic Mechanism to Raise Efficiency and Work Quality."

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7869

CSO: 1829

MOTOR VEHICLE

MEASURES TO IMPROVE ROAD CONSTRUCTION EXAMINED

Moscow PRAVDA in Russian 11 Sep 80 p 1

[Editorial: "Build Roads Faster"]

[Excerpt] The pace of road construction in our country is increasing. In recent years routes with improved surfacing have increased in length by a factor of more than one and one-half. In the Russian Federation alone almost 9,000 kilometers of modern roads are added every year, and during the course of the 10th Five-Year Plan as a whole some 48,000 kilometers of them will have been laid out. Under construction or being modernized are such main highways as Moscow--Kharkov--Simferopol, Moscow--Minsk--Brest, Sverdlovsk--Chelyabinsk, Omsk--Novosibirsk, Moscow--Riga, and others. The five-year plan assignment for the construction and use of roads in the Non-Thermozem Zone has been over-fulfilled.

Nevertheless, the country's road system still consists of more than one-half dirt roads, dependent upon the caprices of weather. According to the calculations of economists freight-haul costs on modern highways are equal to two or three kopecks per ton-kilometer, while on routes without hard surfacing they amount to 15--20 kopecks. This is particularly pronounced in rural regions, where transport outlays amount to 40--45 percent of the production cost of agricultural produce. That is why further improvement in planning and administering this important sector of the national economy remains one of the top-priority tasks.

Recently the CPSU Central Committee and the USSR Council of Ministers passed the decree "On Measures To Improve the Construction, Repair, and Maintenance of Roads in the Country." It outlined an extensive program for laying out new highways and modernizing existing ones. Provisions have been made during the 11th Five-Year Plan to put into operation 80,000 kilometers of roads, including 11,500 kilometers of highways which are important for the entire country and for various republics. It has been recognized as necessary to complete by 1990 the creation of a support system of roads with improved surfaces, thus guaranteeing reliable transport communications between the country's major economic regions and populated points. Roads will also be laid out connecting rayon centers, settlements, and the central communal areas of kolkhozes and sovkhozes. The Ministry of Transport Construction, along with the Councils of Ministers of the Union republics, as well as the ministries

and departments concerned, have been entrusted with the task of refining the general scheme for developing the country's road network and presenting it to the USSR Gosplan.

There is a great deal of work ahead. In order to cope with it successfully, it is necessary, in the first place, to increase the extent of the technical equipment of the road builders and to furnish them with highly productive equipment and machinery with an increased unit capacity. A word here on behalf of the USSR Ministry of Construction, Road and Municipal Machine Building as well as the road ministries of the Union republics. We must speed up the development of capacities of the enterprises which are turning out equipment for the comprehensive mechanization of road construction.

Matters are frequently delayed by breakdowns in the supply to builders of reinforced concrete slabs, asphalt, bitumen, crushed stone, and other materials. The Ministry of the Construction Materials Industry and the Ministry of the Petroleum Refining and Petrochemical Industry must significantly increase the production of high-strength crushed stone and improved grades of petroleum-based bitumen.

Highway builders have been called upon to bring their reserves into action, to sharply increase the pace and the quality of operations. Every group has potentials to do this. Meanwhile, a number of road construction and service administrations, including the Karelian, Voronezh, Dagestan, and Amur, are failing to carry out their plans and are delaying the turnover of route sections. The sector staff must carefully and thoroughly analyze the state of affairs and assist in eliminating the lags.

Advanced experience must be applied more effectively and widely, in particular, that which has been accumulated by the road workers of the Soviet Baltic republics, who have learned how to improve the quality of concrete and asphalt roads. Unfortunately, it is still insufficiently used in other regions. The Volgograd--Astrakhan Road was put into operation comparatively recently, but many of its sections have already become unsuitable. This reflects both the poor quality of the construction work and shortcomings in the highway's utilization. Similar defects have manifested themselves in a number of other places. More attention must be paid to improving the transport-operational qualities of the roads, a strict observance of the schedules for repairing them, and to furnishing the routes with road signs.

2394
CSO: 1829

MOTOR VEHICLE

USE OF CONTAINERS IN BELORUSSIA

Minsk SOVETSKAYA BYELORUSSIYA in Russian 23 Oct 80 p 2

[Report on interviews with Igor' Iosifovich Zinevich, chief of the Minsk branch of the Minsk ATEX-5 [Motor Transport Forwarding Combine No 5], and Nikolay Yefimovich Maksimenko, deputy chief of the Main Administration of Motor Vehicle Haulage of the Belorussian SSR Ministry of Motor Transport, by V. Yefanov: "What Is Holding Back Container Shipments?"; passages enclosed in slantlines printed in boldface]

[Text] Obtaining an interview with the chief of the Minsk branch of the Minsk ATEX-5, Igor' Iosifovich Zinevich, did not prove to be a simple matter. It was the end of the quarter. The telephone was ringing every minute, and numerous callers were looking in deferentially.

One of them introduced himself as the deputy director of a large plant in the capital.

"Igor' Iosifovich, I beg you," he began directly from the threshold, "help us with containers. If you do not help us, the plant will become--we have become overstocked!"

It was a little strange to see a deputy director in the role of a pleading messenger, but Igor' Iosifovich, evidently, was not surprised at all by this; he was accustomed to it.

Turning to me, he made a helpless gesture.

"You asked what is holding back container shipments? The answer is in front of you. In its natural form, so to speak. We have undisciplined customers. It has become the rule that the overwhelming majority of enterprises which make use of motor transport services utilize the minimum number of containers allotted to them at the beginning of the quarter, while they demand the maximum and above what is authorized at the end of the quarter. This disrupts the drivers' plans rather significantly."

"We understand that it is difficult for you," the deputy director interrupted. "But you will understand our position, too. Suppliers are coming with raw materials. They are just beginning to move at the end of the quarter."

/Well, there are objective reasons in the case cited. But I want to point out that they are not always those advanced as justification by the users of motor transport. More often the problem is not with raw materials at all and not with complete units supposedly not delivered to enterprises on time, but with their own lack of internal organization.

/Writing in PRAVDA (10 September 1980), A. Ye. Andreyev, Belorussian SSR Minister of Motor Transport and Hero of Socialist Labor, pointed to this in particular. The problem is very serious. In fact, the effectiveness of such advanced methods of transport as containers and tandem trailer trucks and truck-tractors with interchangeable semitrailers depends to a considerable extent on how efficiently work has been organized at the enterprises which send and receive freight. As experience shows, their effectiveness often is nullified precisely because of customers' lack of preparation./

For a more detailed response to the question and to reveal the causes hindering more intensive utilization of transport, we asked Nikolay Yefimovich Makninenko, deputy chief of the Main Administration of Motor Vehicle Haulage of the Belorussian SSR Ministry of Motor Transport.

/First, a little history. Shipment of freight in multipurpose vehicle containers was begun in 1963. The purpose of them was release of railroad containers and cars in short supply, reduction of transshipment operations and, as a consequence, savings in national economic funds. In the 1964-1975 period, 2,670,500 tons of freight were shipped in this manner. This made it possible to release conditionally 1.46 million railroad containers and 121,000 cars. Taking into account the vast national economic benefit of the experiment conducted (just by accelerating freight delivery, the savings amount to 1.3 million rubles annually), the republic's government has directed drivers and their customers toward a complete changeover of container shipments from rail transport to motor vehicle transport by the end of the 10th Five-Year Plan. In 1979 alone, we shipped 840,000 tons of freight, whereas railroads shipped just 65,000 tons./

"The transport of freight by diesel tandem trailer trucks and truck-tractors with trailers is being developed at an intensified pace. Their production cost is being reduced by half, and significant fuel savings are being achieved. However, the efficiency of both could be greater if customers would work more purposefully to equip cargo platforms and provide them with appropriate loading and unloading machinery.

"Take the Minsk 'Torgodexhda' and 'Tekstil'torg' bases, for example. There are practically none of the needed mechanized loading and unloading facilities here; as a result, vehicles stand idle for 2 to 3 hours above the norm. It is noteworthy that both bases are located on the same territory. The 'Kul'ttorg' and 'Khodz-torg' bases also have been situated here. Because of the congestion which has been created, it is very difficult for drivers to operate and above-norm idle times for containers amount to over 8 hours.

/"Unlike these enterprises, the Minsk Motor Vehicle Plant has adequately spacious platforms and the necessary machinery. However, because of poor organization of loading and unloading operations, they work inefficiently with containers here as well. At times, it develops into a paradox: after being taken off a vehicle, they often are turned into warehouses which are not unloaded for a week or more. At the same time, enterprise managers are urgently demanding the empty ones.

/"In general, many examples can be given. I will say only that just 152 of the 400 enterprises which make use of transport have been adequately technically prepared.

/"This applies to light containers, so to speak, with a capacity of 1.5 to 3 tons. But after all, we also carry those which accommodate 10 to 20 tons of freight each. Hundreds of enterprises make use of them, although not one has the machinery for removing the containers. They unload them by hand."/

"Nikolay Yefimovich, you said that container shipments by motor transport are not new, that they have been developed for more than 15 years. During that time, dozens of enterprises have been built and rebuilt in our republic. One would think that the modern trend in the development of trucking could have been foreseen in their planning stage."

"Absolutely. But in practice this happens far from all the time. Recently, say, construction of the Zhlobin Synthetic Fur Factory was completed. As far back as the period of planning the project—I will note that we learned by chance about this at the Ministry of Motor Transport—we cautioned administrators of the Belorussian SSR Ministry of Light Industry about the need to build a well-equipped container platform at the enterprise. However, they refused, referring to the fact that products would be taken out by rail transport. Today when railroad cars are in short supply, the factory management has been compelled to turn to motor vehicle drivers for help. We, of course, have not refused to help. But what kind of efficiency can there be if vehicles arriving in Zhlobin stand idle for loading?

"The obvious reluctance of a customer to 'come up with the money' to reinforce ancillary production is being observed here. Provided that the target is basically fulfilled, we will find a way there, as the saying goes. Such a practice, which in fact is displayed rather frequently, costs the state a great deal. In the first place, remodeling of access roads--and the urgent task of the day unavoidably requires this--entails supplementary capital investment; in the second place, excessive idle time by motor transport during cargo operations causes still greater harm. It is sufficient to say that last year alone 750 ZIL /Motor Vehicle Plant imeni Likhachev/ vehicles were not operating during the year because of above-norm idle time during cargo operations.

/"Or the following example. The Fanipol'skoye Enterprise for the Marketing of Chemical and Electrical Engineering Products was commissioned 8 years ago. This is one of our largest customers. The enterprise is highly mechanized, and has a sufficient number of platforms. But it operates poorly with motor vehicles. The reason, among other, organizational reasons--lies in the fact that the exchange container platform has not been equipped here. In their search for containers

ready for shipment, drivers must drive all around and load up at all 11 warehouses of the enterprise under unbelievably difficult "unmaneuverable" conditions. If the trend toward development of container transport had been taken into consideration during planning, the loading of vehicles could have been accelerated and the work conditions of the base's workers could have been improved./

"Of course, it would be incorrect to think that both customers and planners generally do not devote attention to enterprises' access roads. This concerns another matter—setting up cargo platforms which meet the requirements of technical policy in the field of motor vehicle transport. After all, not only transport technology is being improved; the vehicles themselves—their carrying capacity and size—are changing. Say the Minsk Motor Vehicle Plant is turning out 20-ton tandem trailer trucks, but all the projects of enterprises now being developed do not take this into account, which leads to involvement of supplemental manual labor and extra physical input. And the MAZ Minsk Motor Vehicle Plant shops are developing a 30-ton tandem trailer truck. Won't it put us in an even more difficult position?"

"And what solution do you propose, Nikolay Yefimovich?"

"Traditionally, it has taken shape in such a way that the Ministry of Motor Transport has not been on the list of those institutions without whose agreement not one project is approved. Some time ago, obviously, there was no necessity for this. But today, when motor vehicle manufacturing has entered a qualitatively new stage, such a measure is simply indispensable.

"I want to point out, by the way, that it has always been recommended that planning organizations turn to vehicle drivers for advice. But it is one thing to 'recommend' and something else entirely to 'make it someone's duty.' I think it is time to resolve this problem. After all, only on the condition that there is compulsory (I repeat—compulsory) agreement of our ministry with technical specifications can such a burning question be resolved."

"Well, it is difficult not to agree. But obviously, in order to do the 'I' these measures are inadequate. As far as I know, many unresolved questions concerning development of advanced forms of transport also are facing the Belorussian SSR Ministry of Motor Transport. Many complaints about the quality of drivers' work, let us say, come from the republic's Ministry of the Construction Materials Industry..."

"We are not belittling our blame. Indeed, motor pools often impede the departure of vehicles for service and do not fully allocate transport in accordance with requests. However, there is a 'but' here, too. It is sufficient to say that about half our ministry's vehicles have been put in facilities whose capacities do not provide technical maintenance of sufficient quality—the result of imbalance in the growth rates of transport, and the increase in the amount of rolling stock and capital investment necessary for development of the physical base. The complaints come from here, too.

"And if one looks at the problem from another angle? Again from the point of view of the customers' preparation.

/"It is not necessary to go far for an example. At the Pobokovich open-cut mine of the Bobruisk Construction Materials Combine, tandem trailer trucks are used intensively for transporting clay. The enterprise management is not devoting appropriate attention to development of access roads in the mine. The result is at hand: it rained, and the trailer trucks have to move out on the road with the aid of a bulldozer. This, unfortunately, is not an isolated case. In more than half of the open-cut mines of the Ministry of the Construction Materials Industry system, difficult conditions for motor vehicles have developed, basically because of the unsatisfactory maintenance of access roads, insufficient number of loading and unloading machines and bulldozers in good repair, and the lack of technical procedures for loading. Incidentally, at many of them the question again rests on the quality of planning documentation of newly built and renovated enterprises. This is on the one hand. On the other hand, a more concerned, practical attitude toward the problem of the customers themselves is necessary./

"I cannot pass this over in silence, either.

"In the 1977-1980 period, the construction and renovation of 19 container platforms were envisaged as part of the Belorussian SSR Ministry of Motor Transport framework. The period is coming to an end, but only five have been made, and another three are being renovated. Mainly because planning organs are not allocating funds for construction."

"So, Nikolay Yefimovich, it should be said in summing up, evidently, that an overall, very thorough approach to the question at all levels is required."

"Exactly. We also are being guided toward this, by the way, by the recent decree of the Belorussian Communist Party Central Committee and the Belorussian SSR Council of Ministers 'On measures to further improve the level of mechanization of loading and unloading and materials handling operations.' The future lies in advanced forms of transport."

8936

C80: 1829

MOTOR VEHICLE

NEW KAZAN'-NABEREZHNYE CHELNY HIGHWAY

Moscow TRUD in Russian 25 Oct 80 p 1

[Article by Ye. Ukhov: "The Highway Leads Across the Kama"]

[Text] Asphalt has been rolled out on the last 100 meters of the new 218-kilometer Kazan'-Naberezhnyye Chelny highway.

An hour after leaving Kazan' we were at the 157th 100-meter marker, where workers of SU-856 and SU-928 [Construction Administrations 856 and 928] were spreading the final meters of bitumen. A dump truck was emptying the next portion of the steaming mass into the hopper of the asphalt paver, and soon after, the section being paved [peramychka] began to shine with a black bed of asphalt.

For several years the brigades advanced toward each other, kilometer after kilometer. During this period the road workers carried out construction and installation operations valued at 75 million rubles and more than 10 million cubic meters of soil were poured out. In order to save time and construction materials, they refused delivery of sand and gravel materials from plants and began laying a so-called stabilized mixture--soil which they dug up from open pits along the way, mixed with cement--on the roadbed foundation. But the route will be fully open only by the end of the year. With completion of construction on the bridge crossing the dam of the Nizhnekamskaya GES [Hydroelectric Power Station], not one ferry crossing will be left on the route.

The products of the giant Kama motor vehicle complex will disperse along the new superhighway to the central regions of the country. Big-browed KamAZy [motor vehicles produced by the Kama Motor Vehicle Plant] will speed off along it singly and in groups toward Kazan', and the wind will blow the conveyer's fresh smells away from them. And tandem trailer trucks with freight for the vehicle makers and oil workers of the Trans-Kama region will move in the opposite direction.

The highway was laid along the Kama a little farther south of the old macadam road. Drivers already have assessed the advantages of the new route. The width of the roadway is 9 meters and the road "jacket" [dorozhnaya "rubashka"], which is a half-meter thick, is able to sustain any overloads. The entire trip from Kazan' to the KamAZ plant takes a little more than 2 hours. The highway bypasses all populated areas, and there is no need to apply brakes incessantly. There are 178 culverts and 12 bridges on the route. The largest bridge crosses the Vyatka near Mamadysh.

"The new road has an entire complex of special structures," states V. Shalagin, deputy manager of the "Kazdorstroy" trust of the USSR Ministry of Transport Construction, the project's general contractor. "Four road maintenance complexes will be serving the route. The highway will have two gasoline stations, vehicle pavilions, rest areas for drivers and passengers, and 'pockets' for parking vehicles and buses. A technical maintenance station will be built near Yelabuga."

Vehicles bound for Ul'yankovsk, Gor'kiy and Moscow will use a new highway bridge across the Volga. It will be one of the largest in the RSFSR, 1,355 meters long. Construction of the bridge will begin next year.

8936
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MOTOR VEHICLE

BRIEFS

KAMAZ TRUCK PRODUCTION—Kazan', 15 Oct—The collective of the Kama Association of Heavy Truck Manufacturing Plants has fulfilled the five-year production plan. More than 184,000 KAMAZ *[Kama Motor Vehicle Plant]* heavy vehicles—auxiliary vehicles *[ortovyye mashiny]*, tractors and dump trucks—are operating today in the country's national economy. Five KAMAZ models are being used successfully in transport enterprises. *[Text]* *[Moscow PRAVDA in Russian 16 Oct 80 p 1]* 8936

ARMENIAN HIGHWAY—The new 48-kilometer Kadzharan-Megri highway has crossed the deep gorges of the Zangezur. Regular traffic has begun on one of the most difficult roads in Armenia, at an altitude of about 3,000 meters. *[Text]* *[Moscow IZVESTIYA in Russian 31 Oct 80 p 6]* 8936

VEHICLE COMPUTER TESTING—The computer complex developed by the Institute of Technical Cybernetics of the Belorussian SSR Academy of Sciences is accelerating the tests of new "Zhiguli" models a hundredfold. Scientists sent the last complete unit of this automated equipment to Tol'yatti. It is no longer necessary to drive a vehicle around a test track for long months in order to test it. The memory of the complex stores data on different types of roads. At the computer's command, pulsers installed under the car's wheels reproduce all the bumps and potholes directly at the test stand. Here the computer analyzes results received and gives a precise characterization of assemblies' dependability. One of the computer complex variations—the on-board version—already is being used by Minsk vehicle manufacturers to determine the extent of vibration in the driver's work place. "Automated systems are one of the future trends in the creative work of the republic's scientists," P. I. Yashcheritayn, academician secretary of the Physical and Technical Sciences Department of the Belorussian SSR Academy of Sciences, told a *HEITA* correspondent. "For example, robots created at the Institute of Technical Cybernetics are welding cabs at the Minsk Tractor Plant. This ensures high product quality and relieves the individual of heavy physical loads." *[Text]* *[Minsk SOVETSKAYA BYELORUSSIYA in Russian 18 Oct 80 p 2]* 8936

YANZ-740 DIESEL MOTOR—Test models of the new-generation--YANZ-740 diesel motors have been manufactured. They will undergo their universal testing at the Belorussian Automotive Plant. This new series of engines develops a capacity of as much as 650 horsepower. They are designed for heavy-duty trucks and the K-701 tractors. During the 11th Five-Year Plan the production of such diesels will be put on a mass, assembly-line basis. *[Text]* *[Moscow IZVESTIYA 14 Oct 80 p 2]* 2334

ZIL PLANT'S SUPERHEAVY PRESSES--Moscow--Transport of superheavy presses has been completed at the capital's Motor Vehicle Plant imeni I. A. Likhachev. The "Kolesnitsa," resting on 128 wheels, moved slowly, centimeter by centimeter, across the plant's grounds. Tractors led the unusual tractor-trailer from the plant's river moorage to the siderail forging shop, where frames for ZIL-131 and ZIL-133 vehicles, as well as new truck models, will be made on the gigantic presses. This operation took a whole month. Just 1.5 kilometers were covered, but all the experience and skill of Yu. Utkin's drivers brigade were needed. "This was the first time we had to perform such a large move when production was in progress," said I. Yeliseyev, supervisor of the operation. "For that reason, we were very careful, too." [Text] [Moscow NEDEL'YA in Russian No 43, 1980 p 4] 8936

LITHUANIAN HIGHWAY--Skirting Sheduva and many kolkhoz settlements, the asphalt ribbon stretched from Panevezhis to Shyaulyay. This road between two large industrial centers of Soviet Lithuania will significantly improve communications of the northern part of the republic with the shores of the Baltic. Collectives of the Panevezhis fifth construction administration and the Shyaulyay fourth construction administration laid the asphalt pavement, erected three bridges, equipped many modern crossings and rest areas, and put the shoulders in order without stopping heavy transport traffic. The task was carried out nearly 3 months ahead of schedule. [Excerpt] [Vilnius SOVETSKAYA LITVA in Russian 4 Oct 80 p 17] 8936

D-1511 DIESEL ENGINE--TASS--Tests have been successfully completed on a diesel engine which was created at the Vladimirekiy Tractor Plant imeni A. A. Gorkiy Association. This new "heart" for farm vehicles with its modest weight and size has a capacity of approximately 150 horsepower. "The D-1511 diesel was conceived as a multi-purpose, universal engine," stated the enterprise's chief designer, Doctor of Technical Sciences V. Efros. It will be utilized in the new plowing tractor which this enterprise is preparing to produce in conjunction with the group of the Lipetsk Tractor Plant. The diesel will also operate in the new, more highly productive grain combines, that is, in those necessary machines whose creation was mentioned at the October Plenum of the CPSU Central Committee. A tractor equipped with the new Vladimirekiy diesel engine will be able to perform several operations at the same time. [Text] [Moscow IZVESTIYA in Russian 28 Oct 80 p 2] 2384

NEW 'KAMAZ' TRUCK MODEL--During the days when the nation was preparing for the 26th Party Congress the second line of the main assembly line witnessed the initial assembly of a group of trailer-trucks representing the sixth modification of the "Kamaz." In order to improve the assembly technology and to reduce this truck's metal consumption, the spare-tire holder is being eliminated from the new model. The "spare" wheel itself, the storage batteries, the air cylinders and the pneumatic apparatus of the trailer will now be fastened onto the frame. Successful mastery of the output of this new, heavy-duty truck has allowed the KamAZ group by the day when the 26th CPSU Congress opened to begin the assembly of two more trailer-truck models --the 20-ton KamAZ-54112 and the fully powered [?] KamAZ-4310 with an engine capacity of 210 horsepower. [Text] [Moscow SOVETSKAYA ROSSIYA 14 Oct 80 p 1] 2384

TRANSPORTING STRUCTURAL COMPONENTS--The Central Scientific Research Institute for Organization, Mechanization and Technical Assistance in Construction has created a system of specialized truck-transport means for hauling pre-cast, reinforced-concrete structural components. This work has been awarded the Prize of the USSR Council of Ministers for 1980. The over-all economic effect to be derived from introducing this system of semi-trailers attached to regular truck-trailers is estimated at 30 million rubles, including 20 million rubles a year by means of reducing operating expenditures. Nineteen models of the truck-transport means with a load-carrying capacity ranging from 9 to 25 tons for hauling panels, beams, slabs, trusses, blocks and sanitary facilities have replaced all the previously existing 430 models, which were created by the construction organizations using their own efforts. A unified technical policy in this matter has allowed us to organize the serial production of these truck-transport means at specialized enterprises of the construction ministries, and this has curtailed outlays by 4.5 million rubles. *(Text)* *(Moscow)* *EKONOMICHESKAYA GAZETA* in Russian No 39, Sep 90 p 9/ 2384

EXE: 1929

CLASSIFICATION YARD ARRANGEMENTS FOR LONGER, HEAVIER TRAINS

Moscow ZHELEZNODOROZHNIY TRANSPORT in Russian No 9, 1980 pp 56-59

[Article by L. V. Abuladse, candidate of technical sciences: "Schematics of Classification Yards for Servicing Combined Trains"]

[Text] An experiment conducted by the Moscow Railroad and approved by the CPSU Central Committee has shown that under conditions of high line loading a major reserve for handling the increasing hauls is to increase their traffic through capacity by putting into constant circulation trains of increased weight and length. This frees up certain channels within the schedule to allow additional trains to pass through and speeds up the hauls of freight which is extremely important for the national economy.

On a number of the network's sections widespread use is being made of putting through combined trains, placing the locomotives at the head and in the middle of the train. This method of intensifying a line's through capacity is utilized for handling planned car flows when "windows" /gaps/ are left open for track-repair and construction operations as well as under conditions of normal operation after the appropriate reconstruction work has been carried out in the yards (developing pool necks, laying down auxiliary tracks and switches, lengthening yard tracks, changing the signals, etc.). Practical operating experience testifies to the high economic efficiency of organizing the circulation of such trains on densely freight-impacted lines and routes.

Further development of the system of running combined trains along with the widespread introduction of the Moscow railroad workers' experience will allow us to free up a large number of schedule channels for additional freight hauls, will enable us without additional capital investments to provide fuller transport service to the national economy, to reduce operating expenditures, and to increase labor productivity.

Organizing the circulation of combined trains poses new requirements for the track development of the yards where their servicing is to be set up. Large-capacity freight trains can be made up not only by accumulating a large number of cars on long classification tracks but also by combining (in yards or in transit) two or more trains of a certain weight and length.

The movement of such trains can be organized on all sections (before being received at a station they need to be disconnected and handled like ordinary trains).

The experience which has been accumulated and the research which has been conducted demonstrates that the movement of combined trains requires definite changes in the system of section operations. In particular, there is to be an increase in the norms of station intervals, of technical stops for car inspection, and for changes of locomotive crews. It is necessary to provide time for the combination and the disconnecting of the trains. Moreover, on the sections where not all the separate points have lengthened receiving and dispatching tracks, the large-capacity freight trains must be passed through with a limited number of stops. This influences the average duration of their stops.

The passing through of combined (heavyweight) trains on the sections can be organized by various methods. When the weight norms for transit freight trains are increased and are left unchanged for the local traffic flow, the separate points have the opportunity, to the maximum degree, to maintain the track development without rearrangements and to limit themselves solely to operations connected with the direct lengthening of the receiving and dispatching tracks. In the opinion of certain specialists, however, lengthening the receiving and dispatching tracks in sectional and classification yards leads, in individual cases, to the need for a complete rearrangement of the existing track development, and this requires very considerable capital outlays.

It is extremely important, therefore, to guarantee the increase in the norms of train weight (expanding the use of combined trains), utilizing the existing track development of sectional and classification yards without significantly rearranging them. In particular, this is possible when the weight norms are doubled for transit trains and the existing norms maintained for local freight trains.

Passing through trains of increased weight and length is carried out with a lack of tracks of appropriate capacity at intermediate stations. The technology of train operations should provide for the presence of lengthened tracks only at the receiving and dispatching points of the initial and terminal stations--points where the heavyweight and extra-long trains are "born and die." The movement of such trains is being organized between major classification yards with powerful streams of car flows and a large amount of classification operations. In this case making up trains of increased rolling stock does not lead to significant additional outlays of time spent on their accumulation.

The schematics and volume of operations with regard to rearranging classification yards also affects the procedure of placing the leading locomotives in combined trains. When they are positioned only at the head of a train, the operation of classification yards with respect to passing through combined trains is made considerably more difficult as compared

with positioning the leading locomotives at the head and in the middle of the combined rolling stock.

Lengthening a portion of the receiving and dispatching tracks or laying down additional tracks for receiving and dispatching combined trains can be carried out on the existing yard area as well as beyond its limits. In classification yards use must be made of existing possibilities and reserves for building additional facilities, proceeding from the configuration of the schematic and the reciprocal placement of its principal elements, the scope and nature of the train flows to be processed and those in transit, the local conditions and prospects for the yard's development.



Figure 1

In our opinion, it is more convenient and feasible to position the additional facilities for servicing the doubled-up trains within the yard's limits. One such variant is shown in Figure 1. The additional facilities for incoming combined trains are arranged in the schematic in the area of the hump and the exit neck of the receiving area P, while for the departing trains they are positioned in the area of the rear neck of the classification area S and the neck of the dispatching area O. These facilities (indicated by stippling) include tracks of ordinary length, switches, and siding dead-end arresting devices. For receiving selected trains and for dispatching those of its own make-up in the direction opposite to that of the classification, loop-shaped tracks (semi-rings) have been provided at both ends of the yard.

The reception of combined (extra-long) trains is carried out in the following manner. The trains are passed through along one of the rim tracks for receiving, designed in such a way that one set of rolling stock with its locomotive remains in area P, while the other is shunted onto the additional track. After uncoupling, the train which was received onto the additional track is also pushed onto one of the free tracks of area P. Then the processing of the rolling stocks begin along with their preparation for being sent down from the hump. The train locomotives enter the depot in the usual order, along the main lines indicated in the schematic. The usable length of the additional tracks is the same as that of the tracks in the areas for receiving and dispatching trains.

In order to combine made-up trains and prepare them for dispatching, the second rolling stock of the future combined train is pulled by a switcher locomotive out of the classification area S, through the make-up extension, and placed onto the additional track. Then the train locomotive is passed through to it and is coupled to it. The first rolling stock is brought from the area S to the dispatching track. The second rolling stock, which had been prepared earlier with the train locomotive, is pulled up and coupled with the first. The combined train is supplied with a head train locomotive. Then it is processed and made ready for dispatching.

The same technical methods are utilized for coupling made-up rolling stocks with destinations along the track to transit trains. The additional tracks can also be used for servicing and passing through combined (extra-long) transit trains heading in both directions.

The schematic of the classification yard under consideration (See Fig. 1) has been designed for the parallel discharge of rolling stocks and provides for the construction of auxiliary classification facilities (low-capacity humps as well as grouping areas) in order to expedite the making up of multi-group (composite and transfer) trains and the processing of local car flows. The locomotive and car systems LVKh are situated in one area alongside of the classification area.

In order to supply local cars, the yard schematic has provided for a general exit to the rail sidings of industrial enterprises and to the freight yard GD from the dispatching area. The feedback of these cars into the yard is carried out into the receiving area P, which makes it possible to pass out the local cars and classify them according to their destinations through the main classification hump OC. There are other possible variants for positioning in the yard local points and their connections with the basic areas, depending upon the interrelated situation of the yard, the city, and the principal industrial enterprises (districts).

The same schematic may be used for positioning additional facilities at classification systems of double-set hump yards as well.

When considering the possibility for more widespread organization of putting through combined (heavyweight) trains on a number of runs, the appropriate schematics for sectional and classification yards must be worked out. One such schematic for a single-sided hump yard is shown in Figure 2. Here provisions have been made for dispatching trains already made up directly from the classification area S; therefore, most of this area's tracks are classification-dispatching tracks C-O. The reception area P has lengthened tracks for receiving combined trains and standard-length tracks for trains of the regularly established weight.

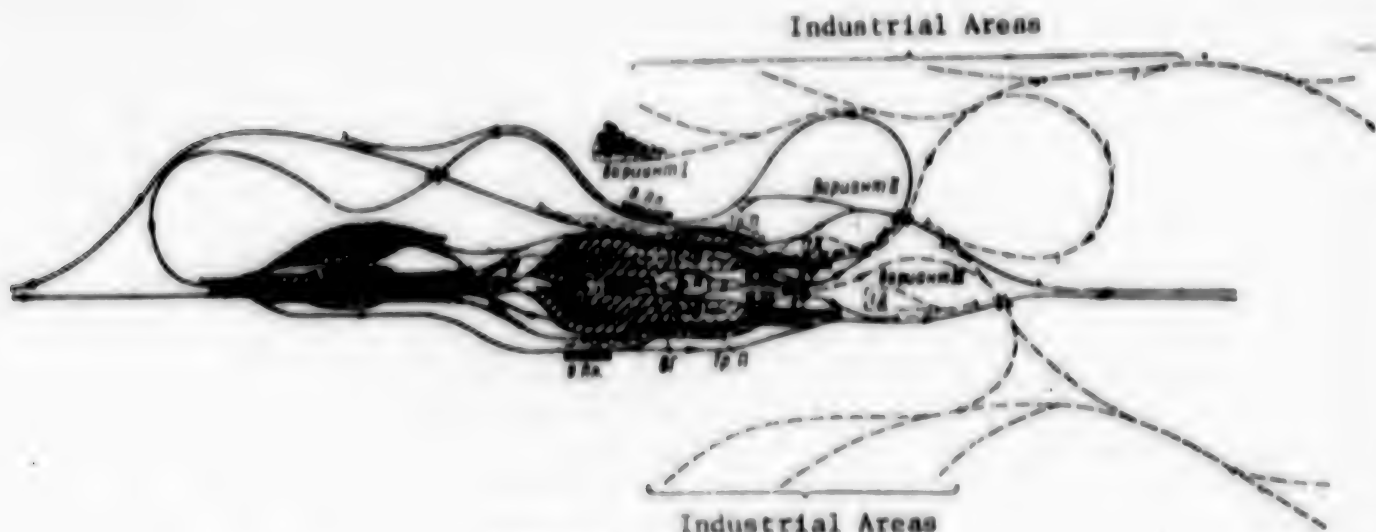


Figure 2

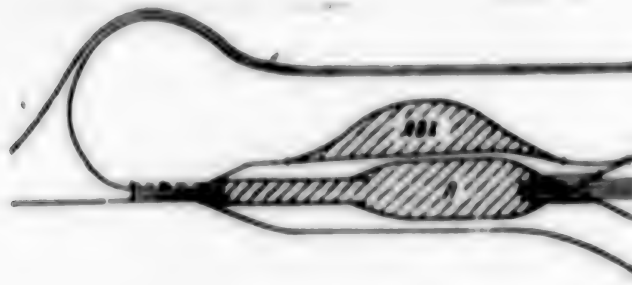
Classification-dispatching tracks also have a doubled usable length and are designed to accumulate cars and to make up doubled rolling stocks. A part of the tracks of the classification area of the standard usable length is designed for making up trains with the regularly established weight norms.

The classification yard's middle tracks have been earmarked for accumulating local car flow (to loading and unloading points, siding tracks of industrial enterprises, as well as for making up multi-group composite and transfer trains). With this goal in mind, additional classification facilities have been constructed at the end of the central cluster of tracks --an auxiliary hump VG and a local grouping area Gr. M. Most of the tracks of the grouping local area are no more than 200--250 meters in length, while the tracks of the full usable length are envisioned for making up and dispatching composite and transfer trains. The dispatching of made-up trains of all categories, both ordinary and doubled-up, is carried out from the rear necks of areas S, S-O, and Gr.M.

The transit areas are located in a continuation of the classification clusters, and along with tracks of standard length they have lengthened, additional tracks for processing combined transit trains. The dispatching of ordinary freight trains which have been made up can be organized from the areas for transit trains Tr.P.

The locomotive and car systems are located alongside the receiving area and are conveniently linked with all areas with the aid of feeder lines situated along both sides of the classification area.

All the loading and unloading points GD, S.Pl., K.Pl., and the rail sidings of the industrial enterprises have a direct connection with the local grouping area Gr.M. In the reverse direction local cars can be fed into the yard from the rear of the classification area as well as through reception area P and the main classification hump OG. This insures the yard of a high degree



of flexibility in processing local car flows.

On the enveloping main tracks platform stops O.Pl. have been made for suburban trains.

The schematic under consideration for a one-sided hump yard insures a complete operational flow with regard to receiving, passing through, making up, and dispatching combined and extra-long trains, the detailed classification of the local car flow, expediting the make-up of multi-group composite and transfer trains, as well as a convenient link with the local points for loading and unloading and with industrial enterprises.

A yard for processing and unmaking as well as making up combined, extra-long trains can be built in accordance with the schematic shown in Figure 3, with a combined positioning of the principal areas. In particular, receiving area P is situated sequentially and the dispatching-transit areas--parallel with classification area S.

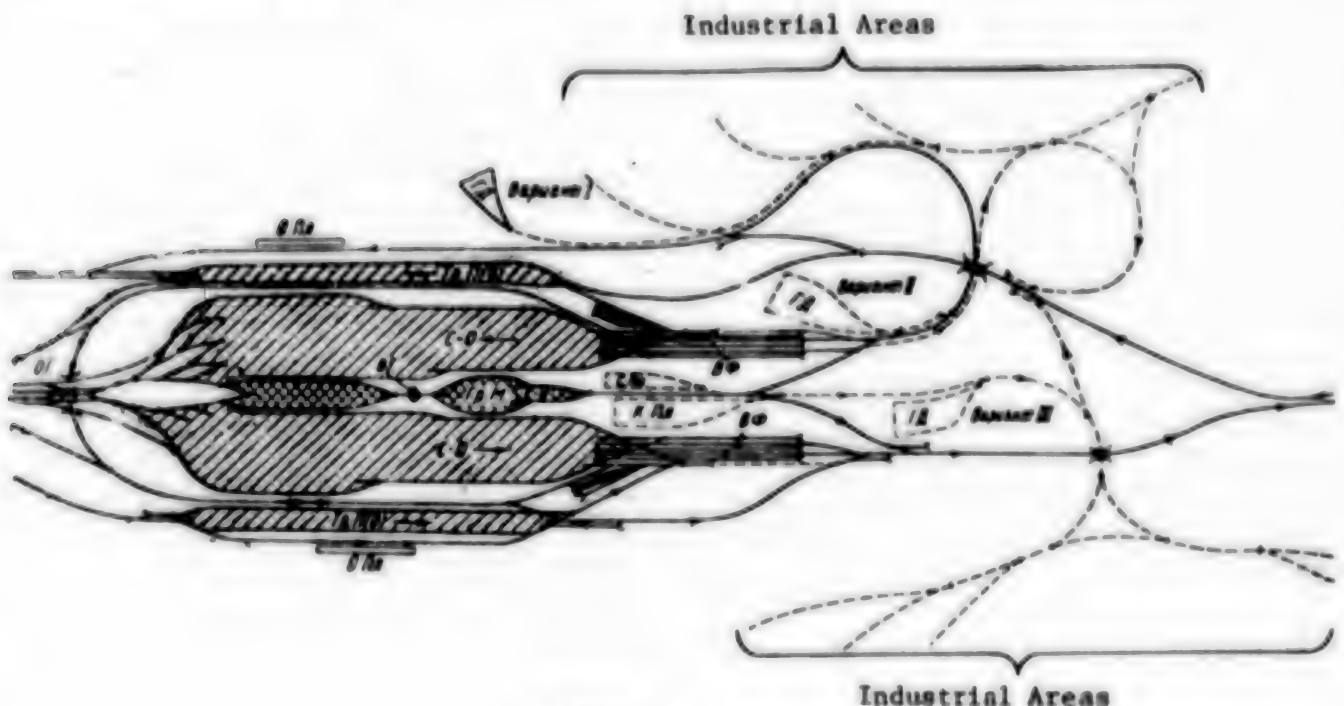


Figure 3

Receiving area P consists of tracks of doubled and standard usable length. Combined trains from both directions are received on the area's long tracks, while ordinary trains are received on its short tracks. The unmaking of selected trains through the main hump OG is carried out in accordance with the accepted technology. The train locomotives from the disassembled trains are shunted into the depot along feeder tracks (with an exit near the hump). These tracks are situated along both sides of the classification and dispatching-transit areas, and they are conveniently connected with their necks.

A portion of the classification yard's tracks have been planned for a double usable length. The dispatching of extra-long, already made-up trains is provided for directly from these tracks.

The combining of two made-up trains or a made-up rolling stock with a transit train can be carried out through an extension of make-up on the tracks of the dispatching-transit area, which are also being planned with a doubled-up usable length.

The accumulation and repeated classification of the local car flow are carried out along the central cluster of classification tracks, the auxiliary hump VG, and the grouping local area Gr.M. The schematics of the approach bypasses and the links with local freight points and rail sidings of industrial enterprises are the same as in Figure 2.

The proposed additional facilities and schematics of the one-sided classification yards provide for the effective servicing of combined (heavyweight) trains, and they can be utilized in rearranging existing hump yards as well as in building new ones.

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ELECTRIC AND DIESEL TRACTION IN INDUSTRIAL TRANSPORT

Moscow ZHELEZNODOROZHNIY TRANSPORT in Russian No 10, 1980 pp 42-45

[Article by Doctor of Economic Sciences and Professor V. A. Dmitriyev: "Electric and Diesel Traction in Industrial Transport"]

[Text] Industrial rail transport performs important functions in the material production and circulation of goods. Territorially and technologically, the operation of all types of industrial transport is divided into internal (intrashop and inter-shop) and external. Intrashop transport is an integral part of the technological process of production. Intershop transport is not linked primarily to the technological process and moves freight between shops and warehouses on the enterprise site or within one industrial center. External industrial transport is intended to supply enterprises with raw and other materials, fuel, equipment and other freight, as well as to ship finished output from the enterprise site to points where it is transferred to mainline transport or directly to the consumer. Thus, industrial transport is on the one hand an inseparable and integral part of production and on the other it is a link in the unified transport network.

Overall Characteristics

Industrial rail transport accounts for 46.5 percent of all freight turnover, the remainder being done by motor transport (50 percent) and noncontinuous types of transport (3.5 percent). The best-developed rail systems, including large number of locomotives, rail cars and the maintenance base for them, are in the Ministry of Railways (spur tracks, interbranch industrial rail transport associations), Ministry of Ferrous and Nonferrous Metallurgy, Ministry of Coal Industry, Ministry of Light Industry, and Ministry of Machine Building. In 1977, the united industrial rail transport enterprises (PPZhT) were transferred to the Ministry of Railways.

Industrial rail transport has an enormous influence on the operation and development of the socialist economy. The rail network of industrial transport is 131,400 km long (total length). The 1978 freight shipments by this type of transport were 10.9 billion tons and the freight turnover was 78.7 billion ton-kilometers. In the 10th Five-Year Plan, freight shipments by normal-track industrial rail transport grew by 26-28 percent.

It should be noted that industrial rail transport still lags in its technical development behind both the level of the basic production it serves and the level of technical condition of the mainline railroads. This lag relates first of all to the area

of introducing electric and diesel traction, to overall mechanization and automation of loading and unloading, to rolling stock and track maintenance, and also to equipment and methods of organizing the planning and management of shipping and loading operations.

The resolutions of the 25th CPSU Congress anticipated the essential completion in the 10th Five-Year Plan of the change-over of industrial enterprise rail transport to diesel and electric traction. Work on creating automated control systems for industrial rail transport and other projects was also outlined.

Among the measures aimed at ensuring the accelerated development and improved economy of operation of industrial rail transport, the most important is completing the replacement of steam locomotives with electric and diesel traction and the creation of a material-technical base for the repair and maintenance of these progressive locomotives. Steam locomotives have outlived their usefulness and become a brake on the use of modern equipment and technology at plants, factories, quarries, mines and associations. They are not powerful, they are inefficient (3-4 percent), current expenditures per unit of transport output are high, and enterprise sites are dirtied. By early 1979, electric and diesel locomotives comprised 85 percent of the industrial transport locomotive fleet. In this regard, about 25 percent of the total freight turnover was handled by electric traction and there were 7,400 km of electrified lines.

Diesel locomotives handle about 70 percent of all industrial transport. The large PPZhT's, combined transport systems, loading-transport administrations and large combines and plants have up to 100 or more diesel locomotives each and their own diesel locomotive systems.

The industrial transport system as a whole inventories a locomotive fleet consisting of 75 percent diesel locomotives, 10 percent electric locomotives and 15 percent steam locomotives.

Industrial transport locomotive operation has a number of features distinguishing it from the mainline railroads. Among them, we should first of all note the short range of shipment: 1-3 km in intraplant transport, up to 7-8 km on certain unit trains, and up to 10-15 km in quarry transport. The grades on intraplant tracks are generally slight, but the steepness of the gradients to metallurgical plant trestles and scrap stockyards reach 15-20 percent in a number of instances, and they reach 50 percent or more in quarry transport. Traffic speeds are 4-25 km/hr due to the shortness of the sectors, small curve radii, numerous crossings and restricted visibility of signals. Also included among these features are the comparatively light weight of the consists, sharply variable traction equipment operating conditions, and high proportion of operation at partial load and idle.

All these and other specific operating conditions of industrial transport have a substantial influence on the economic indicators and spheres of use of the different series of locomotives and types of traction.

For diesel locomotives, it costs an average of 24.8 to 25.6 kopecks to ship one ton of freight 6-10 km; the cost is 11 to 16.3 kopecks for electric locomotives and traction units. The net cost per ton-kilometer is 1.07 to 1.8 kopecks for electric traction and 2.76 to 4.14 kopecks for diesel traction. The higher net cost of transport in industrial transport (as compared with mainline transport) is basically to be

explained by the short shipping distances and correspondingly by the higher proportion of expenditures associated with starting and finishing operations.

Electric Traction

In industrial transport, electric traction is developing more slowly than diesel traction, and it has important features as compared with the use of electric traction on mainline railroads. The fact is that the electrification of industrial transport is being done in regions with railroad lines which have already been electrified or on a base of enterprise electric power engineering, that is, we use the substations existing at plants, mines, factories and mainline roads. Traction transformers for industrial electric locomotives are being installed at integrated substations. The contact circuit and electric power supply installations are simpler and 5-6 times cheaper than on mainlines. The integrated use of electric power supply installations to meet enterprise needs and supply traction equipment increases electrification effectiveness and yields a large additional national economic impact.

At present, series 11KP4, 1UKP1, YeL2, YeL1, 13Ye1, 21Ye1, 26Ye2M, VL26 and other d.c. electric freight locomotives and YeL2+1V, PE2M and PE1 traction units are being operated in industrial transport. In addition, D100M and D94 a.c. electric locomotives and YeL10, OPE1, OPE1A, OPE1B, OPE2 and other traction units are operating at quarries.

In order to operate on nonelectrified sectors, the YeL2 electric locomotives have been equipped with independent power supplies -- diesel generators located right on the electric locomotive or on a four-axle drawn platform car, or storage batteries installed on a drawn platform car. The YeL1 electric locomotives are widely used in quarry transport and in plant shipping and siding work.

New traction units (electric locomotives) with improved traction-operating characteristics and parameters, standardized, mutually-interchangeable subassemblies and basic units (undercarriage, traction engines, electric machines, apparatus and others) have recently been put into operation at many quarries. They are modern d.c. (PE2M) and a.c. (OPE2, OPE1A and others) vehicles. The OPE1, OPE1A and OPE1B traction units have more powerful diesel generator installations which are used relatively briefly only at longwall dead ends, where the sectors are not electrified. At haul cuts and on the remaining sectors, the units operate as electric locomotives. The economic impact of operating these new traction units will be 100 million rubles this five-year period.

We began introducing the single-phase a.c. industrial frequency 10-kV electrification system in 1955. Quarry transport electrified using this system was initially served by series D100M electric locomotives, then by D94's, which ordinarily operate using dual traction. Later, we began using traction units for such quarries. As was noted, we are currently manufacturing a.c. 10-kV OPE1, OPE2, OPE1A and OPE1B traction units and PE2M and other d.c. 3-kV traction units.

The OPE1 traction unit consists of an electric locomotive with cab control, a 2,000-h.p. independent diesel power supply and a 41-ton motor dump car. This locomotive has good traction features and is powerful both in terms of the traction electric engines and in terms of the diesel, which enables it to haul heavy rolling stock consisting of sidings with gradients of up to 50 percent or more.

The OPE2 traction unit is a modification of the PE2M; its mechanical portion, body, motor dump cars and basic electrical equipment have been standardized to a considerable degree. Series OPE10 and OPE1B a.c. 10-kV traction units with one motor dump car and with a motor diesel section are being produced using the OPE2 as a base; the diesel in the former is 1,500 h.p. and in the second -- 2,000 h.p. The unitized design makes these traction units convenient to operate. The OPE1B traction unit, with an hourly operating power of 5,460 kW, consists of an electric locomotive with cab control, an independent power supply section with a 2,000-h.p. diesel and a motor dump car. We anticipate using powerful rheostatic and magnetic-rails brakes and planned thyristor voltage regulation on the traction engines. Planned power regulation will permit increasing train weight by 7-10 percent and reducing dynamic forces and equipment wear. Servicing personnel working conditions have been improved on the OPE1B unit: the engineer's cab is electrically heated and has a refrigerator, water heater, cab glass electric defroster, radio control system and other equipment. Experiments are underway to have the unit serviced by one person. The unit can be operated from a loading platform.

However, the OPE1A and OPE1B units, like the OPE1, are still hard to service and repair. In this connection, it is appropriate to replace the motor dump car with a power-assisted section, since that permits lowering the cost of the units, simplifying their repair, reducing their length and improving overall reliability.

Further improvement in this traction equipment must come along the lines of increasing the voltage in the contact circuit, increasing the number of motor sections in each unit to 4-6 units, using power-assisted sections instead of motor dump cars, the extensive use of thyristor regulation and, in the long range, increasing axle loads to 35-40 ton-force. These measures will enable us to significantly increase the carrying capacity of electrified rail transport at quarries from which rock must be hauled out from great depths, as well as to reduce shipping net cost.

In 1977, we finished planning a new d.c. PE3T traction unit. It is equipped with thyristor-pulse regulation in the traction and electrical braking modes, which ensures a 20-25 percent improvement in traction and braking performance as compared with the PE2M unit. The diesel section of the PE3T unit's independent power supply is fully standardized with the OPE1B. The economic impact of introducing each PE3T unit is estimated to be about 130,000 rubles per year.

The high level of subassembly standardization (up to 70 percent) in electric locomotives and traction units has made equipment repair easier and cheaper. Many ore enrichment, coal and asbestos enterprises have already been equipped with the modern traction units. However, work on developing the maintenance base is being done insufficiently quickly and the supply of spare parts is incomplete, which makes it more expensive to operate the units and which increases down time for maintenance.

Experience and technical-economic calculations associated with the use of electric traction in industrial rail transport demonstrate the appropriateness of further electrifying tracks with heavy freight traffic, large plants (especially metallurgical ones), mines, open pit mineral quarries and ore enrichment combines. The greatest impact from electrification is obtained in regions with harsh climatic conditions, such as the Urals, Siberia, the Far East, and the northern and central regions of the European portion of the country.

Electrified rail transport accounts for a significant portion of the total shipment volume of enterprises extracting iron ore, coal, nonferrous metals and building materials. Thus upwards of 40 percent of all bulk freight is shipped by electric traction. In quarry transport, the highest productivity in terms of rock hauled is achieved when electric traction is used. As the depth of the operation increases, electric locomotives and traction units have no competition at all. The continuous deepening of the quarries, the necessity of reducing arable land and of using haul-out trenches with grades of up to 60 percent, as well as the rise in prices for diesel fuel increase many-fold the economic expediency of replacing steam and diesel locomotives with electric locomotives for these types of work.

Diesel Traction

The first diesel locomotives appeared in industrial rail transport in the 1930's. But the extensive introduction of diesel traction began in 1956, as it did on the mainline railroads as well. The most widely used diesel locomotives were the 220-750-h.p. hydraulic transmission TGM, TGM1, TGM3 and TGM4 and the hydraulic 1,200-h.p. TGM6, and the 1,000- to 1,200-h.p. electric transmission TEL, TEM1 and TEM2. Many of these locomotives were insufficiently powerful and did not fully meet the demands of industrial transport. Nonetheless, the electric transmission TEM1, TEM2 and TE3 (single-section) diesel locomotives were convenient to operate and economical, given a considerable work volume.

At present, 11 series of the most widely used first-generation diesel locomotives are working in industrial rail transport, and deliveries of a number of these series are continuing. Diesel locomotives of this generation, with hydromechanical and electrical transmissions, have merits and shortcomings of their own.

The TEM1 and TEM2 turned out to be the most reliable to operate. The diesels in these locomotives have a relatively high motor potential and the electrical transmission sustains long between-repairs periods. The diesels and hydraulic transmissions of the TGM and TGM diesel locomotives have poorer operating indicators, are insufficiently reliable, and often require disassembly between planned repairs.

In the early 1970's, a diesel locomotive with a hydraulic transmission, the TGM6A, was built at the Lyudimovskiy plant. In terms of traction-operating and economic qualities, it was the equal of the TEM2 shunting diesel manufactured by the Bryansk Machine-Building Plant. Work is underway to create an improved TEM2 diesel equal in power to the TGM6A (1,200 h.p.). It has better traction qualities and more favorable power indicators under all operating conditions.

All industrial diesel locomotives are series produced by domestic diesel locomotive plants. The main efforts being made to improve these locomotives consist in bringing their coupling mass into line with their power, in eliminating the multiplicity of series and types of basic subassemblies, and in using durable, improved diesels with a higher motor resource, better efficiency and minimal fuel expenditure at idle. Work is underway to expand the release of electric transmission diesel locomotives and to manufacture modifications of several diesel locomotive series for operation in environments with explosion and fire hazards and on sectors where red-hot steel ingots and other freight giving off large amounts of heat are shipped.

In 1977, an All-Union State Standard was developed for "Shunting and Industrial Diesel Locomotives. Types and Basic Parameters." This All-Union State Standard plans

several types of industrial diesel locomotives with different capacities for work on sidings, in unified systems and in plant transport. They will be diesel locomotives of the more progressive second generation.

Further diesel locomotive improvement, as is the case with electric locomotives, will come along the lines of improving power, reliability and durability. Increasing consideration is being given in the locomotives being developed to the features of the technology and organization of industrial transport; technical-operating parameters are being improved and energy economy is being improved. The designs for the new industrial diesel and electric locomotives reflect the achievements of modern science and engineering, including pulse voltage regulation in traction engines, automated systems, reliable radio installations and remote control devices, effective braking systems, anti-skid devices, and others.

Spheres of Application of Progressive Locomotives

Electric and diesel traction possess high energy efficiency. For example, the average efficiency of fuel use for diesel locomotives remains quite high -- 4.5- to six-fold higher than for steam locomotives -- even given sharply varying loads and a high proportion of partial operating conditions.

According to calculations made at the Moscow Institute of Rail Transport Engineers (MIIT) based on test results for diesel locomotives under operating conditions, the efficiency of the TGM1 diesel in shunting work in industrial transport is 15-19 percent (13 to 15.5 percent with consideration of fuel loss in processing and transport), and it is 17-20 percent for mixed operation on sidings and PPZ.T. The level of efficiency depends on the diesel locomotive series, operating conditions and procedures, specific fuel expenditure for auxiliary needs, and traction characteristics features. For example, the average operational efficiency for TGM1 and TGM3A diesel locomotives is 11-13 percent.

A diesel locomotive is expected to operate 8,300 hours per year; outfitting, inspections and routine maintenance take up an average of 460 hours per year. Under these conditions, average diesel fuel expenditures per year per locomotive are 18,500 rubles, while they were 2-3 times higher for steam locomotives. Annual electric power expenditures per industrial electric locomotive average 13,500 rubles, that is, 27 percent less than the energy expenditures for a diesel locomotive.

The most important advantage of electric traction is the reduction in expenditures on all types of routine and plant maintenance, approximately two-fold less than for diesel locomotives. Electric locomotive maintenance is considerably simpler than that for diesel locomotives and requires less expenditure of labor.

Given all the uniqueness of operating electric and diesel locomotive in industrial transport, determining the economic effectiveness and advantages of their introduction has much in common with mainline transport. Thus, given a comparatively small volume of work, slow traffic speeds and train weights and an easy track profile, the greatest impact is obtained when diesel locomotives are introduced. As the volume grows and the consist weight and traffic speeds increase, calculated expenditures first draw level and then diesel traction becomes less effective and it becomes time to replace it with electric. Therefore, delay in replacing diesels with electric locomotives (contact, contact-battery or diesel-contact) leads to economic losses (as

does premature introduction of electric traction). The rates of growth in calculated expenditures increases more slowly for electric traction than for diesel locomotives as the amount of shipment increases, since the fleet of electric locomotives required is smaller and expenditures per unit of transport output not dependent on shipment volume decrease in a larger amount.

Freight turnover and the magnitude of the governing grade on the freight line influence the effectiveness of electric and diesel traction on sidings to a greater degree and track length and type of locomotive used influence it to a lesser degree. The cost of electric power and diesel fuel has a substantial influence on the distribution of types of traction. Rough calculations show that on tracks with grades of up to six per thousand diesel traction is more effective, even with freight turnover of up to 20 million tons per year, and on tracks with grades of 12 per thousand -- given freight turnover of less than 10 million tons per year. Electric traction becomes more effective with freight turnover of 10 and four million tons per year, respectively, if siding track power supply installations are serviced using means of a mainline railroad adjacent to it or existing enterprise electrified transport.

At enterprises of many branches of industry, intraplant rail transport has a comparatively low freight turnover, and rail transport generally participates little in the technological processes of production. In this connection, an absolute majority of the enterprises have a very small number of 30- to 70-ton locomotives and short lengths of track. Only certain large plants, such as those in metallurgical, machine-building and chemical industry, have as much as 5-10 km of track per locomotive and 20-100 or more locomotives. Therefore, diesel traction is generally more convenient to operate and more economical than electric traction at enterprises of machine-building, chemical, power, light and a number of other branches of industry for intraplant transport.

In conclusion, it should be stressed that the sphere of profitability of electric traction in industrial transport will grow as shipment grows, the efficiency of energy resources use at electric power plants increases, electric power becomes less expensive, and the deficit in and cost of diesel fuel increase. In turn, the shortage and restricted expenditure of diesel fuel in industrial and mainline rail transport will increase with the continued development of petrochemistry, where it is an irreplaceable raw material, and also with the growing demand for it in other branches, including river and ocean transport, as well as agriculture.

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RAILROAD

PROBLEMS IN USING HEAVIER TRAINS

Moscow GUDOK in Russian 14 Oct 80 p 2

[Article by I. Kokulin, GUDOK correspondent: "When a '10,000-ton' Train Moves Along"]

[Text] It's Either a Feast or a Famine

There are railroad workers who, upon learning that the Muscovites, in developing a competition for using heavier trains, have run '10,000-ton' trains, have begun to pose the following question: do they provide any tangible advantages or do they cause harm by disrupting train traffic? Among such readers of GUDOK is S. Kondrat'yev, a former senior scheduling engineer on the railroad's division. He considers that everything should be done "...without any 'hurly-burly,' following the usual procedures." In the opinion of the author of this letter, "it is necessary to rigorously adhere to the existing train traffic schedule, and then the through capacity of every train section will be carried out completely. Add to this the keenness of the dispatcher's wits. And then we will scarcely need to put through any 'extra-heavyweight' trains."

If this were 30 years ago, when those throughput capacities of the sections were not exhausted, then the opinions of S. Kondrat'yev could have been accepted as having good grounds. Indeed, why should we strain ourselves if the car flow and the number of trains correspond to the 'threads' of the schedule?

But what if nowadays they do not correspond to each other? What if, for example, there were a sudden increase in the freight flow, and it became necessary to put through more trains than were on the schedule? Where could we put the "extras," and what 'keenness of dispatchers' wits' could rescue us in this case?

No matter how you twist and turn, there is only one conclusion: if the throughput capacity has been exhausted, it is necessary to increase the carrying capacity for hauling additional cars.

Locomotive engineer A. Shevchenko from Smolyaninov is partly in accord with S. Kondrat'yev's opinion. He writes as follows: "We, for example, in the

sections serviced by us run trains with three, and sometimes even four, locomotives--that's because of the grade of the track here. The weight of such trains is critical with regard to the total multiple traction. And when we are told that on some section or other a 'heavyweight' train has been run whose weight has exceeded the norm by 500 or even 1,000 tons, the following question asks itself willy-nilly: what were they hauling in the other trains, air or something? In general, it turns out that it's either a feast or a famine.'

I read this letter and recalled a certain locomotive engineer--a well-known expert in the past at running heavyweight trains from the Moscow Classification Depot to the Ryazan Depot. They would usually write about him in the newspapers as follows: "In heavyweight trains he carried so-and-so many thousand tons of freight above the norm." I decided to compute how much freight he used to carry above the monthly norm. I took the number of trains which he ran per month, multiplied them by the weight, and compared this with the norms. It turned out that this innovator was not fulfilling his monthly assignment because one day he would run a heavyweight train and the next day--one which was below the normal weight.

But must it follow from this that we do not need heavier trains? No, this does not follow. It is the case rather that we need flexibility in our operational work. We also need to have variant schedules for differing amounts of traffic: if the car flow declines, or running heavier and longer express trains takes on a mass character, curtail the number of trains in the schedule, and leave the extra locomotives in reserve. Then it will not be a case of "either a feast or a famine."

However, the conditions which we are talking about were typical of their own time. Now on the main routes cars and rolling stock wait for locomotives and not the other way around. And heavier and longer trains are all the more necessary. But they are also needed for another important reason.

For Track Repair

The condition of the track must not be forgotten. On the Moscow Railroad it is getting worse every year. These tracks include many rails which are overdue for repairs, and the number of warnings for trains to reduce their speeds. But, of course, the capital's main line is considered one of the best. Here, as nowhere else, track workers are accorded "windows" for major repairs as needed. But how can they carry out current maintenance, if trains follow one another within a few minutes?

The track fitters can hardly manage to climb up to the roadbed, drive home a spike or two, when they must climb down onto the shoulder, because a passenger train or a freight train is approaching. Under such conditions it is difficult to work normally and maintain the track in a satisfactory condition.

The problem consists in increasing the intervals between trains by means of curtailing their numbers, especially during the daytime. This can be done only by running heavier and longer trains.

Let's cite an example. The Rybnoye--Perovo Section is one of the most densely congested in the network. When they began to run "6,000-ton trains" here, the number of freight trains dispatched from the Rybnoye Station was cut down on an average by 20 units a day. Recently "10,000-ton trains" began to be run here as well. Calculations show that if all cars were included in runs of this weight, then approximately one train per hour would be dispatched from Rybnoye. Thus, time would be freed for track work. And the track fitters would be capable of carrying out the necessary operations so that the warnings to reduce train traffic speeds could be removed.

And here is yet another argument of no small importance as to why railroad transport needs heavier and longer trains.

There Would Be No Good Fortune...

One of the "trump cards" which the opponents of heavier trains put forth is the danger of overloading the locomotive. Herein they cite many proofs. The main one is that the extra weight of the train leads to an overheating of the motor's armature winding, and it may burn out. But it must not be forgotten that the organization of train traffic in the experience of the *huzgovitze* is called new because it changes its conditions; it must be without detours. But at times this is not taken into account.

I recently had occasion to ride with V.S. Shemakhov, a locomotive engineer at the Bryansk-2 Depot. It came about that at the Bryansk-2 Station a train was being made up whose weight exceeded the critical norm established for that section with regard to train weight by 500 tons. As an experiment, however, the locomotive engineer undertook to run it to Sukhinichi. The dispatcher gave the green light.

During this trip I kept track of the ampero meter readings and the time during which V.S. Shemakhov maintained the motor under the maximum allowable load. Thanks to the skillful actions of this locomotive engineer, the amplitude of the current did not exceed the established limits. However, Shemakhov was accused of carrying on "guerrilla warfare" [grandstanding].

Of course, "guerrilla warfare" cannot be allowed or else the entire locomotive pool would be out of order. Neither, however, must the new requirements be left out of consideration.

I asked N. Artem'eva, the traction calculations group chief of the traffic service why the critical norm on the Bryansk--Sukhinichi Section had been set at 4,100 tons.

"In case the train stops at the Polpinakaya Station," she answered. "A heavier train cannot be taken in here because of the steep upgrade."

And so this innovation is being measured by old gages. /Because the Muscovites' experience presupposes precisely traffic without any detours, i. e., according to a "thread" of the schedule mandates the provision of a green light along the entire section./ **/In boldface/** I asked M. Artem'yeva to calculate the critical weight for a train traveling from Bryansk to Sukhinichi without any stops. The result was astonishing. It turned out that in this case a locomotive engineer can run a train without any stress weighing 5,000 tons, i. e., 900 tons more than the established amount. And A. Shemakhov had taken an excess of only 500 tons. As they say, there would be no good fortune without the aid of misfortune.

Inertness Is Putting on the Brakes

Admittedly, the authors of this innovation themselves did not anticipate the effect which was obtained. For, in specifying non-stop movement as a mandatory condition, they were taking their point of departure from the following prerequisite: if a heavier or longer train stops at an intermediate station and which has short tracks, then it will not "make it."

The example involving locomotive engineer V. Shemakov showed what a considerable reserve there is for increasing the carrying capacity of the sections. In this instance non-stop movement allows the ceiling of the critical norm to be raised by almost 25 percent. And so, why has it not been implemented? Inertness is putting on the brakes in this matter. Instead of taking advantage of the possibilities which are right at hand, certain transport chiefs prefer to maintain their old position.

But wherever ways are sought to increase hauls creatively, taking local conditions into account, the experience of the Muscovites is being implemented. In the Caucasus, as is well known, the track grade is difficult. But this has not stopped the locomotive crew of the Gudermes Depot on the North Caucasus Railroad. They first began to run doubled-up trains with a single locomotive. Then they began to combine three sets of rolling stock into one weighing 10,000 tons and to run them by means of two diesel locomotives along the Gudermes--Astrakhan Section.

"Granted, at first we had certain difficulties," I. Antipenko, a locomotive engineer at the Gudermes Depot, writes to the GUDOK editors. "In certain instances it was a matter of weak organization, but, believe me, the course that we have adopted is the correct one."

Unfortunately, the Muscovites' experience is not being actively introduced everywhere. In response to the article "A Genuine Reserve for Today" which was published in GUDOK, V. Volkov, the deputy chief of the Main Traffic Administration, has written to the editors as follows: "Certain transport chiefs, and primarily those in the locomotive, car, track maintenance,

and electric-power supply sections, have an incorrect understanding of the large scope and importance to the state of this problem, and, therefore, they sometimes are slow in resolving the organizational and technical questions connected with raising the norms for train weights and lengths."

When there's slowness here, there's slowness there. Which is to say, that this reprimand must also be laid at the door of the Main Traffic Administration.

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RAILROAD

PROBLEMS IN SENDING SMALL SHIPMENTS

Moscow KHOZYAYSTVO I PRAVO in Russian No 9, Sep 80 pp 34-39

[Article by G. Gordin: "The Big Problems of Small Shipments"]

[Text] There are many sides to small shipments. As recorded in the Rules for Shipping Cargo, small shipments are those that are "presented on a single invoice for shipment, which do not require an entire railcar for shipping." In the Soviet economy it is difficult to find an enterprise that is not in some way connected with this kind of shipment. But the problem is that today small shipments are very costly, both in a moral and material sense, not only to the sender and recipient but the shipper as well.

This article is devoted to some of the problems of small shipments, which the editors offer to the attention of their readers.

Among the problems connected with the shipping of small shipments on the railroad, one of the most complicated concerns the returnable packaging. We shall note that the problem became even more complicated in August of last year, when the Ministry of Railways, as they now say, ordered that small shipments of multireusable packaging were not to be accepted for one-way shipping. A letter that the editors received from senior legal adviser G. Pavlov in Rostov-na-Donu attests to the results of this order. "At present the question of returning packaging is very confused. Stations on the North Caucasus railroad are forbidden to accept nonseparable packaging in small shipments for shipping according to certificates written by bases and depots. They are also refusing to accept the returnable packaging of the North Caucasus regional administration of material and technical supply. More and more returnable packaging is piling up at consumer depots; the fines are increasing; and because of the lack of packaging suppliers are not shipping product.

We know that the very same situation exists in other regions of the Soviet Union. If this is so, we must clarify the opinion of the other side of the story. We have done so.

In substantiating his position, the deputy chief of the administration for containerized and packaged shipments of the Ministry of the Railways, I. Sivayev, informed the editors that: "The supply and sales organization, in receiving product in carload batches, distribute the product to customers, while refusing to accept returnable packaging from them. As a result there is an artificial fragmentation of carload batches into small shipments, which is contrary to the Rules for Shipping Cargo and which does serious injury to the national economy. Such shipments require twice as many railcars and take twice as long to reach their intended destination; there are also additional expenses for sorting (3.61 rubles per ton) and the shipping cost increases significantly as compared with carload shipments (particularly, milk cars - 3-5-fold). In addition, all along the line additional difficulties are created in the operation of the railroads since the packaging that is being transported is repeatedly sorted; this requires a large expenditure of manual labor at a time when there is a limited number of cargo handlers, equipment and depot facilities. The repeated transfers of cargo from one car to another result in wear and tear to the cargo."

We shall not delude ourselves: the departmental approach, as they say, is very much present here. There are few cargo handlers and depot facilities. These are very objective reasons, which need not concern the client: he pays for shipping the cargo; the full support of the shipping process is the business of the railroad. But this is troublesome, and carload shipments are simpler and more convenient: the shipper loads and the recipient unloads.

It is important to remember that the Ministry of the Railways' order, as I. Sivayev reported, looks like this: "The return of nonseparable packaging from cargoes that arrive in carload shipments must be accomplished in the same kind of shipments." Such an order can be called an indirect ban rather than a direct ban. All the same it is a ban, which is implemented jointly. Sometimes even to one's benefit.

"For us the problem of shipping returnable packaging is being solved in concert with other problems that are connected with small shipments," says the first deputy chief of the Central Asian Railroad, Ya. Bakholdin. "In connection with this I will announce that for more than two years on our railroad small shipments have been shipped only in containers. Returnable packaging is still being shipped in carload shipments. Of course, we have had to overcome the long existing, very irrational procedure, which looks something like this: railcars of paint, glass, construction and other materials arrive at republic or oblast supply bases. The bases distribute them in small amounts to the customers. One customer gets two barrels of cement and another a box of glass. At the same time the customers are given a certificate stating that the packaging is to be handed over to the railroad within a certain time period. Everyone knows what happens then. Leapfrog, confusion and congestion at the stations. Based on what is good for business and considering state interests, we have established within our railroad a unified procedure: packaging is returned to the place where the cargo was received. And at the base? Yes, to the base. In practice when the base hands out cargo it knows that in one or two weeks

the returnable packaging will be returned to it. The base will be concerned about the availability of a railcar or container in plenty of time, will collect the packaging and ship it. Was the cargo received on the railroad? Present the invoice and they will accept the packaging without a word."

"Further clarification is needed: the station will accept such packaging only if it is in bales," continues the deputy chief of the freight service, V. Ponomarev. "I will explain: everything is somewhat overlooked that a box, bottle or barrel were packaging only until they had something in them. Without contents packaging is not packaging, but cargo! It has to be baled, even if only tied together. But the shippers of packaging are not keen on this, because it means a lot of bother, work and expenses."

"Still it has to be admitted that the railroad workers are looking for ways to solve the problem. It is another matter whether or not their ideas are legal or successful or not? However, one of these ideas has a certain logic to it: packaging (as we shall see later, far from all packaging) must be returned to the place where the product was received.

Unfortunately, economic processes cannot be regulated with only the use of simple logical constructions, particularly since they often conflict with practice. In truth, seemingly at first glance logical bans - indirect and direct - did not yield special results, as was discovered. And on the North Caucasus Railroad the problem of returnable packaging shipments has not been fully solved: some agree with the established procedure and others protest. In a word, there is no agreement yet. Under the present conditions is agreement possible?

The conditions, we will say straight out, are far from being defined. Daily work from time to time sheds light on some unclear aspect of the problem. "Is there any logic in returning packaging to a supply and sales organization when it is hundreds of kilometers away from the consumer, when the railroad station is nearby?", asks the letter of A. Skobelev, who is a senior legal adviser of the supply and sales administration of the Ul'yanovsk executive committee.

The station is nearby. It is as if there is nothing to think about: take the packaging to the station and save on shipping. It is possible that for one customer this solution is advisable and profitable. But if there are hundreds of organizations handing in packaging and they all overload the station with small shipments? Probably, in this case very little profitability remains.

"There is no easy solution," asserts the chief of the USSR State Committee for Material and Technical Supply's All-Union Association for Packaging Materials, N. Lykov. "There are Special shipping conditions and a state standard for each type of packaging. For example, the customer is obliged to return registered packaging to the supplier. There is nothing to argue about here. Or a chemical product that has been received. The empty barrels must be steamed in special chambers. If

one is to observe the principle of the Ministry of the Railways, our organizations must take care of this. How are they to do this? But just imagine that the supply and sales organizations go ahead and accept the packaging. Between acceptance and shipping there must be an inspection: is the packaging broken or smashed? If it is smashed, then it has to be put into order. To do this more than a base is needed; it must have a packaging repair plant attached to it! At the same time the proposed procedure: 'packaging materials are to be returned to the place where the product was received' is acceptable for some kinds of packaging that does not require cleaning and repair.

This means that it is acceptable all the same! Then why can't the customer return even some kinds of packaging to the bases. As concerns the packaging repair plants attached to the supply and sales organizations, this is no fantasy! In connection with this assertion we shall cite several lines from an official document: "The USSR State Committee of Material and Technical Supply and the councils of ministers of the union republics are to create within the main administrations for material and technical supply in the union republics and in the territorial administrations of the RSFSR the appropriate structural subelements for organizing the repair and processing of returnable wooden and cardboard packaging in place." This is what it says in the decree of the USSR Council of Ministers of 15 April 1968, No. 247, "Concerning steps to improve the recycling of packaging in the national economy and to increase the production of economical kinds of packaging." The decree recognizes the advisability of transferring packaging repair plants and lumber enterprises to the authority of the USSR State Committee for Material and Technical Supply. And, as we know, presently within the system of the material and technical supply organs more than 500 organizations are now functioning, which manufacture and repair wooden and cardboard packaging. At the same time it is apparent that less has been done in this direction than is required by the needs of the national economy. One of these requirements is that the organization that hands in packaging must be freed from these concerns. This hastens the solution of the returnable packaging problem in general. This is why the time has come to give some thought to creating a special organization, the smooth and result-oriented activity of which, would remove this question from the agenda. The problem is so acute that it requires immediate solution by the responsible organizations - the USSR State Committee for Material and Technical Supply and the Ministry of the Railways.

As I. Sivayev writes, "The Ministry of the Railways has developed and sent to the USSR State Committee for Material and Technical Supply a draft joint order on this matter (letter No. 312pr of 27 September 1979); however, the document was not signed." What kept the proposal from being accepted or rejected? An explanation came in a letter that was sent to the editors by the deputy chief of the contract and legal department of the USSR State Committee for Material and Technical Supply, Ye. Tikhomirov. This is what the letter says: "The question of the procedure for returning multireusable packaging to the manufacturers, in connection with the introduction by the Ministry of Railways of a one-way ban on shipping such packaging in small shipments, is now being studied by the USSR Gosnab and the Ministry of Railways."

"The matter is being studied..." In other words, both organizations are clarifying the relationships and weighing the situation, while the customer, clutching a useless certificate in his hand, has just been running from one dependable organization to another, demanding and begging them to take the unlucky packaging from him. The reader probably notices that the verb "run" was used in the past tense; he, of course, knows how the situation has changed. The USSR State Board of Arbitration has concluded that the ban imposed by the Ministry of the Railways conflicts with the Charter of the railroads and the Statute concerning product deliveries, on which basis the USSR Procuracy lodged a protest. As a result the ban was rescinded. And this is as it should be: if the Ministry of the Railways, in imposing the ban, even if it was governed by the very best intentions, no one had given it the right to act unilaterally, in contempt of the law!

All the same this turn in events scarcely suits everyone: the situation, which has ostensibly cleared up at one location, was even more tense in all other locations. One must not forget that even prior to the imposition of the ban on shipping packaging in small shipments the problem was more than acute. Unfortunately, that is how things remain. We will not disregard everything that I. Sivayev wrote in his letter: the irrational use of railcars, the reduction in the speed of cargo deliveries, and additional expenditures for their sorting and shipping.

Following the lifting of the ban the supply and sales organizations basically stopped accepting packaging, believing this to be the job of the railroad. The railroad in turn did not remain on the hook: in reversing its previous order, the Ministry of the Railways determined that returnable packaging is to be accepted by all stations that were open for small shipments, in strict accordance with the procedure called for by the Rules for shipping cargo. The rules, by the way, state that small shipments are to be made "according to expanded plans submitted by the enterprises, organizations and institutions - the shippers of cargo - to the railroad divisions 20 days prior to the start of each calendar month" (Section 1, Paragraph 33). These and other conditions - the packing of cargo and its careful preparation for shipping and so forth - are a more serious hindrance to the customer than the ban that was recently in effect. Meanwhile, all of these requirements are scarcely a new development; they were long ago recorded in the Charter of the railroads, in the Rules for shipping cargo, and in other standard documents. The customers is not used to observing them and through inertia is not at all ready for them. It will straight out that this is the railroad's fault, which has not paid previous attention to the violations. And now when conditions demand it, particularly the most acute need to regulate shipments, the railroad is categorically insisting that standard instructions be followed. And this natural right of the railroad is being disputed by the USSR State Committee for Material and Technical Supply. Understandably, the Ministry of the Railways is protesting. In a word, the correspondence continues and, as before, the problem remains unresolved.

There is the concept of reserves (both material and production reserves). Most often this concept is accompanied by a word of explanation "unused". And the practice of everyone looking for their own unused reserves "in their own house" has come into being. And if one takes a broader look? Then one can probably see reserves that are truly untapped! But there is the indispensable condition - trust and mutual benefit and the ability to subjugate purely departmental interests to those of the state. Only then is there a common desire to find a solution to a complicated problem.

At the Tashkent- freight station there is a large number of gigantic double wheels - drums filled with cable. They are waiting to be shipped to the cable plants. They have been waiting for a long time; and no one knows when or where they will be leaving. Basically the problem is that only three or four drums fit into a railcar. And there have not been nor will be any excess cars; and, apparently there won't be any anytime soon. The main problem is that those who are handing in their packaging, in contempt of the rules, are not dismantling the drums.

What will happen? There will be fines and then, naturally, regressive legal actions. Somewhere the plans for the production and delivery of product will be disrupted because of the lack of these very drums. But right here next to the Tashkent station, at the Lunacharskiy station is the Sredazkabel' Production Association. Can it really be that this powerful enterprise does not need drums?

"We cannot give the drums to the association," the railroad workers said, "the Lunacharskiy station does not accept small shipments. Perhaps they could be shipped by truck, since the drums are not dismantled."

When the time comes, the drums will be shipped thousands of kilometers from Tashkent, while the packaging will come here from completely different places. If you evaluate what has happened, what word would you choose to describe it? Inertia? Indifference? A lack of economic awareness? And to whom do you address the word, to the railroad workers alone?

The chief of the All-Union Association for Packaging Materials, N. Lykov, clarified:

"Our main administration is not required to work with drums. This is the first point. Secondly, the reason for the large number of drums being at the Tashkent- freight station is apparently that the instructions, which were issued by the USSR Ministry of the Electrical Equipment Industry, were not well thought out and do not ensure the rapid return of scarce packaging materials."

The deputy chief of the All-Union Production Association Soyuzelektrokabel', B. Ivanov, objected:

"There is no such instruction. We operate on the basis of the Special conditions for the delivery of cable, which was approved by the USSR State Committee for Material and Technical Supply and the USSR State Arbitration Board back in 1971. The appendix contains the instructions concerning the procedure for returning packaging that contained cable. The instructions require the consumers to return the drums to the nearest cable plants, which can make use of such kinds of packaging. If they are a different kind of drum, there is also a way out: each drum is accompanied by a certificate which, as a rule, indicates the numbers of the drums and the enterprises that use them. So the customer himself determines the nearest point where he can return the empty packaging."

As they say, "everything looks good on paper..." Until it is shipped, it is a torment!

"And not just with the railroad", clarifies the senior legal adviser for the Production Association, N. Zhuravlev. "Sometimes our plants do not fully provide the utilization numbers for their drums. Let us assume that the certificate indicates the cable plant in Perm', but forgets to mention Uralkabel' in Sverdlovsk. A customer near Sverdlovsk sends the packaging to Perm', hundreds of kilometers further away."

The Tashkent story in Soyuzelektrokabel' was evaluated in the same way: complete slipshodness. And more than likely they were not in error!

"Iredazkabel' would gladly take the packaging," said B. Ivanov. "They literally take us by the throat, demanding we supply them with drums. Of course, we look for some and give them some, but the drums are right next door. I think that many troubles occur because the Association for Packaging Materials [Soyuzglavtara] does not want to deal in drums. We have raised this question more than once - they refuse categorically!

Let us clarify: according to the statute, this main administration does not regulate matters connected with multireusable packaging, including drums filled with electrical cable.

"The fact that Soyuzglavtara does not deal in drums is good," says N. Zhuravlev with conviction. "Perhaps for this reason the situation with packaging in our production association is more or less all right. Each plant has packaging shops and every legal office has packaging groups. They manage their own responsibilities. In addition, there is the material incentive: every year our plants recover 18 to 20 million rubles in fines for packaging alone. This money is added to the profits of the enterprises! This is extremely advantageous, and, to tell the truth, we do not want a change."

Four points of view on one question. But how contradictory they are even within one organization - an All-Union Production Association! Doesn't this explain the long standdown of cable drums at the Tashkent-freight station? And also the fact that Soyuzelektrokabel', the railroad and Soyuzglavtara have no common desire to solve at last the question of returning valuable cable packaging.

We understand that it is not easy to find the best solution to the "packaging problem". It will require time. Still, some steps have to be taken in this direction: this is the only way to reach an intelligent and mutually advantageous solution. Especially since there are some examples of this.

The instructions governing the procedure for handing in, returning and using wooden and cardboard packaging require the customer, who received spare parts or parts in boxes, to return them to the plant-manufacturer. But how to return? There is the possibility of collecting such boxes during the month for a full railcar - and to ship a carload. But what happens when an organization does not accumulate this amount during a year? The instructions also cover this, by establishing a three-month norm for shipping the boxes by container.

In following such instructions, the consumer watches over his own interests and those of the supplier as well as those of the supply and sales organizations. It turns out that any measures taken by the supply people are effective only when the recipients of the product participate in carrying them out. Otherwise...

"We have a large number of registered containers," says the chief of Soyuzglavtara, N. Lykov, "but half of them are practically not in operation. In what manner? Take a look. For example, the USSR Ministry of Construction Materials Industry justifiably complains: money, metal and time are wasted; containers are manufactured, which the consumers treat badly. The customers in this case are the construction organizations. It is true that they have their problems: the project is behind schedule, there are no storage facilities and so forth. But does this justify the fact that they convert containers and false bottoms into warehouses, keeping them for six months to a year! They pay fines for the delay in good order: is the loss great? It is indeed! It is not just the builders who treat registered containers in this way. They would return on time - here is your help!

We shall add: here is another step toward solving the problem.

"The Gomel' Glass Plant imeni Lomonosov supplies window glass. The glass is delivered to the Glavmosstroy bases, from whence it is delivered to the construction sites. There was a time when the construction sites themselves returned the glass packaging to the plant-manufacturer. But the manufacturer demanded that the bases return the bulky boxes in large batches. Considering the complexity of such a job and particularly the small profitability, Soyuzglavtara decides that the boxes should not be returned to Gomel', but to send them to the Moscow Packaging Plant for reprocessing. In place of the returnable packaging the Gomel' Glass Plant is allocated funds for new lumber. How is that for thriftiness!

As we can see, the supply people are searching and taking steps, which they now have within their power. Nonetheless, their position in regard to returnable packaging has the appearance of an excuse: "We are

unable to accept it." And there truly are few opportunities for them to do so. In studying one of the pre-contract arguments, the RSFSR State Arbitration Board determined that the Mostovarskyt association, with which the enterprise where the author of the letter, G. Pavlov, works has dealings, services more than 5,200 customers, who receive their products in returnable packaging; but the association does not have an adequate number of storage facilities, equipment and work force to accept it. The situation is no better in other supply and sales organizations.

Does this mean they have the same objective excuses that the railroad workers use? And once again it is the customer that pays for this! Why? He has his obligations - to fulfill the plan and manufacture a product. Material-technical support is the responsibility of the supply workers. What is more the customer has the funds and the freedom to choose funds, while the supply services are far from free. We will not discuss packaging in general; we will agree with the opinion of the chief of Soyuzglavtara, that some kinds of packaging are best returned to the place where the product was received. But the customer still does not have this right!

Today the receipt of product is immediately complicated by the issuance of a certificate, which ostensibly provides the opportunity to ship packaging by railroad. We admit that this opportunity is not always realistic. In general, what good is this certificate? The receipt of the product by itself requires the customer to return the packaging. Return! Nothing complicated about it: if the packaging does not need cleaning, repair or renovation, return it to the place where you got it! If this were the way things are... The customer is directly "tied up" by various clarifications, which abound in the Special conditions for shipping. The word "return" immediately becomes multifaceted and filled with various meanings, from which evolve barriers which are at times insurmountable. One must assume that this is the reason for the existing attitudes.

Let us call things by what they are. Today the supply workers sometimes fail to devote the needed attention to the organization of work; they do not always make it at all convenient for those for whom the material and technical supply organs were created. In such conditions the customers are compelled to do everything they can to avoid returnable packaging. It is understood that such attitudes, on the one hand, are illegal; but, on the other hand, they simply interfere with the normal activity of the enterprises. In all likelihood, the USSR State Committee for Material and Technical Supply, in carrying out the requirements of the CPSU Central Committee and USSR Council of Ministers decree "concerning the improvement of planning and strengthening the influence of the economic mechanism upon raising the efficiency and quality of work", will undertake steps to ensure that the activity and material base of the supply and sales organizations correspond with their complex responsibilities.

From the Editors

Of course, not all of the positions and opinions in this article are indisputable; but at the same time it is apparent that the problem that has been raised is complex and labor intensive. And if we are to speak only of the first steps, then the railroad workers have quite a bit to do, and the supply and sales organizations have even more to do. It is now clear that neither the USSR State Committee for Material and Technical Supply nor the Ministry of Railways will unilaterally solve the problem. The joint, coordinated plans of both organizations are needed; and, most important, the joint actions of these responsible organs. But what sort of actions and plans are needed? Without doubt, the basic directions of the forthcoming work are well known to the USSR State Committee for Material and Technical Supply and the Ministry of the Railways; however, we are convinced that much can be offered by ordinary workers, including those among our readers. For it is they - the keepers of the economy and the railroad workers - who are most knowledgeable - no matter who they are - about the positive experience in this direction and about the unresolved and new problems that arise in returning, shipping and recycling of multireusable packaging.

In inviting the readers to continue this conversation, the editors hope that their opinions, discussions and, of course, specific proposals will promote a more rapid and rational solution of this acute and important to the national economy problem of returnable packaging.

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RAILROAD

TECHNOLOGICAL RESERVE OF IDLE CARS

Moscow ZHELEZNODOROZHNIY TRANSPORT in Russian No 10, 1980 pp 59-62

/Article by V.A. Kudryavtsev, candidate of technical sciences:
"The Technological Reserve of Idle Cars"7

Text⁷ The arrival of idle cars at freight handling roads during a twenty-four hour period is characterized, as a rule, by a distinct lack of smoothness in operation: more than 65 percent of the cars arrive in the last six hours of the period; and during the first six hours of the day their influx falls off to 5 percent. The congestion of idle cars arriving at 1800 hours distorts the indicators that characterize the work that has been fulfilled, especially the turnover of the idle car. This takes place because the idle trains that arrive during the last six hours of the day are not, as a rule, loaded during that accounting day. As a consequence of this there is a sharp increase in the number of idle cars on the railroad at 1800 hours, which are considered to be the working park.

From the accounting data it at first glance appears that the railroad has been working with a large park during the 24-hour period, while in reality the size of the park was considerably less (Fig.1). For this reason the turnover of the car, which has been estimated according to this "accounting" park, will be artificially inflated. This circumstance must be taken into consideration when drawing up technical norms for the operation of the railroads.



Fig. 1. Key:

1. Availability of idle cars
2. Accounting 24-hour day
3. Park according to accounting data
4. Actual park

The impact of this factor can be diminished by the creation of a technological reserve of idle cars (TRPV). Such a reserve makes it possible for the railroads to actually maintain the park, including the reserve, because the reserve entry is done two hours prior to the conclusion of the accounting day. The reduction of the park in this manner at 1800 hours by transferring a portion of the idle cars to the reserve somewhat compensates for its increase by means of the reinforced supply of idle rolling stock in the last six hours of the day. For this reason the railroads are motivated to have as large a TRPV as possible, and the Ministry of the Railroads must strive not to tolerate surpluses when establishing norms for this reserve. Procedural questions of establishing TRPV norms (or the operational reserve) have been examined in several research papers; however, in recent years some of their hypotheses have become outdated and the conditions of operation have changed significantly. We shall try to formulate the principles, which can be based on the methodology of establishing TRPV norms for the freight handling railroad on the whole.

The TRPV was created to increase the steadiness of supplying loading railroads with freight handling resources. The term "freight handling resources" will be understood as the number of idle cars that can be used on the railroad for loading in a given 24-hour period.

On a freight handling railroad the formation of freight handling resources depends upon the following factors, which characterize its operation during a 24-hour period: unloading (V), receipt of idle cars (D), number of cars out of commission during unloading and not ready for loading (B), out of commission idle cars received from other railroads according to regulated assignment and not ready for loading (G), number of idle cars with commercial malfunctions received from other railroads according to regulated assignment and not ready for loading (K), and idle cars coming out of repair (Zh), and also the number of idle cars coming from loading preparation points following the elimination of commercial malfunctions (Zh). These factors represent random values. Deviations are evaluated by the appropriate values of the root-mean-square deviation σ_V , σ_D , etc.

If we assume that all of these random values are independent, which does not contradict the substance of the process under review, then the 24-hour value of the freight handling resources (which we shall call A) can be expressed as the difference of the sums V , D , E , Zh and B , G and K . The mathematical expectation of this value m_A is equal to the algebraic sum of the mathematical expectations of its elements. With the stipulation that all technical and commercial malfunctions of the idle cars that are not ready for loading are eliminated within the limits of the railroad, the value m_A is estimated as the sum of the mathematical expectations of the parameters V and D .

Deviations in the 24-hour value of the freight handling resources, just as the factors that affect it, are characterized by the root-mean-square deviation σ_A , which is estimated according to the parameters σ_V , σ_D , σ_B ,

and so forth. One can then figure that the value σ_A will correspond to the arithmetic sum A' of all of the component elements of the freight handling resources V, D, B, G, K, E and Zh . The mathematical expectation of this sum equals the sum of the mathematical expectations of its elements. For their values one can take the average 24-hour values of these elements estimated over a sufficiently long period of time (month or year), or their planned values.

For approximate estimates one can determine the root-mean-square deviation in the value of the freight handling resources depending upon the average 24-hour volume of car traffic U according to the graph (Fig. 2), which was drawn up on the basis of average net data and available scientific recommendations. To obtain more precise results, which will reflect the specific nature of all elements of the freight handling resources, it is necessary to use the root-mean-square values of all deviations, which are established statistically and which are adjusted as needed for the forthcoming period.

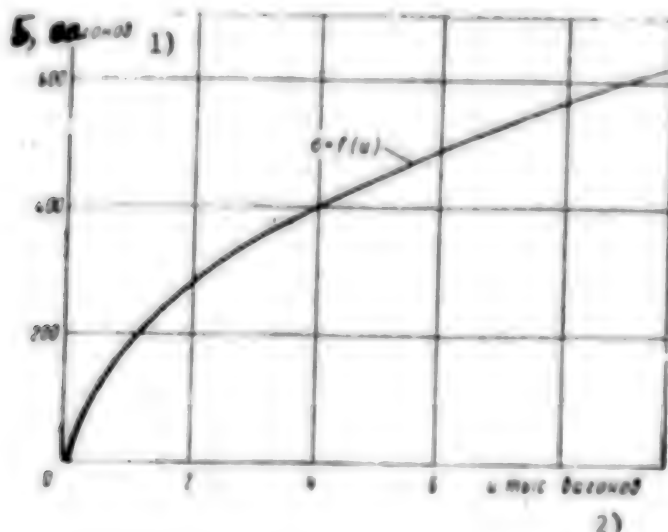


Fig. 2. (Key: 1 - Number of cars; 2 - Thousands of cars.)

The TRPV R must compensate for deviations in the 24-hour formation of freight handling resources A in order to ensure smooth 24-hour loading operations P . The graph (Fig. 3) depicts a diagram of TRPV operations. Sections, which are shown as diagonal lines, correspond to the withdrawal of cars from the reserve when there is a shortage of freight handling resources in a given 24-hour period; sections, indicated by vertical lines, correspond to the delayed supply of idle cars into the technological reserve when there is a surplus of freight handling resources. When the average 24-hour value of the freight handling resources corresponds precisely to the technical loading norm, the total areas of the sections with diagonal and vertical lines must be equal, when the review period is sufficiently long.

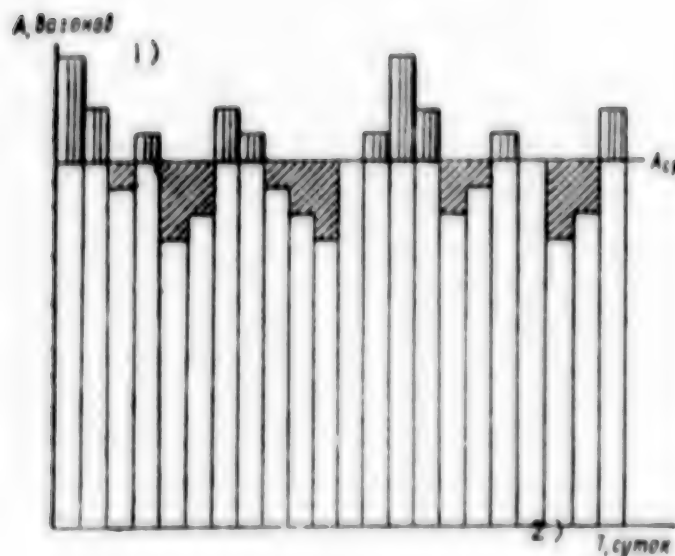


Fig. 3. (Key: 1 - Number of cars; 2 - Number of 24-hour periods.)

Research carried out at the Leningrad Institute for Engineers of Railroad Transport has shown that 24-hour deviations in the volume of car traffic are subject to the normal law of distribution. For this reason the probabilities that within a given 24-hour period the value of the freight handling resources will not achieve its average value or exceed it are also equal and amount to .5 each.

The TRPV must compensate for the reduction in freight handling resources that may occur in the course of several consecutive 24-hour periods. For this reason the duration of a possible drop period has a direct impact on the value R and is also a random value.

Its characteristics can be determined in the following manner. Taking into consideration that the probability of reducing the value A in a given 24-hour period is less than its average value is equal to .5, the probability that the duration of the decrease will be one 24-hour period is also .5, i.e. $r_1 = .5$. For the period of decrease to be two 24-hour periods it is necessary to reduce the freight handling resources in two consecutive 24-hour periods. The probability of this happening is $r_2 = .5k$. On the basis of this data one can compile the progression of distribution and estimate the characteristics of the random value k . According to the data in Table 1 we find that the mathematical expectation of the duration of the period k will equal 1.994 24-hour periods, the dispersion is $5.894 (1.994)^2 = 1.918$, and the root-mean-square deviation is 1.385 24-hour periods.

If we take the estimated period of reduction in freight handling resources to be $k_r = t_k + 1.5 k \approx 4$ 24-hour periods, then the probability that the value of any period of reduction will not exceed k_r equals

.938. The rather high level of reliability k_r (.938) that is obtained demonstrates that if the technological reserve of idle cars can compensate for the reduction in freight handling resources on the railroad over a four 24-hour period, then this can ensure a consistent compensation for the fall-off in freight handling resources in general.

n	r_k	r_k^k	$r_k^{k^2}$
1	0.500	0.500	0.500
2	0.250	0.500	1.000
3	0.125	0.375	1.125
4	0.063	0.252	1.004
5	0.031	0.155	0.775
6	0.016	0.096	0.576
7	0.008	0.056	0.392
8	0.004	0.032	0.256
9	0.002	0.018	0.162
10	0.001	0.010	0.100
Total	1.000	1.938	5.894

Table 1

The average number of periods of reduction in freight handling resources (with different time periods), which may occur during a month s_k , can be determined by multiplying the number of all possible 24-hour periods k (n_k), which can be recorded in the course of a month (30 days), by the k probabilities of the reduction in freight handling resources r_k that correspond to these periods. The calculation of the values s_k are cited in Table 2, which demonstrates that a four 24-hour period reduction in freight handling resources can occur 1.7 times per month on the average, and a five or six 24-hour reduction may occur less than once a month. The shorter periods are included in the longer ones. Thus, a three 24-hour period includes two 48-hour or three 24-hour periods. In this manner, the calculations that were made confirm the correctness of standardizing the technological reserve of idle cars based on the estimated period of reduction in freight handling resources, which comprise four 24-hour periods.

n	n_k	n_k	s_k
1	0.500	30	15.00
2	0.250	29	7.25
3	0.125	28	3.50
4	0.063	27	1.70
5	0.031	26	0.80
6	0.016	25	0.40

Table 2

The range of values in the reduction of freight handling resources of from 0 to $3\sigma_A$ was divided into 15 integrals to determine the average value of the reduction in freight handling resources. A corresponding probability was estimated for each of them. The estimates demonstrated that the mathematical expectation (average value) of the reduction m_x is .7898. Then based upon the established value of the estimated period of the reduction in freight handling resources lasting four consecutive 24-hour periods to standardize the technological reserve of idle cars the value R , which equals $4m_x\sigma_A = 4 \times .7898 \sigma_A = 3.16\sigma_A$, can be estimated as $3\sigma_A$.

The steadier the formation of freight handling resources, the less need there is for the TRPV. The reserve is replenished by excess idle cars, which come into existence during the surplus formation of freight handling resources. The system for managing freight handling resources must ensure their minimal 24-hour period deviations, i.e., the maximum possible reduction in the value σ_A .

Deviations are possible when fulfilling loading plans on the railroads. The amount of deviation has a direct impact upon the value of the TRPV. Thus, for example, if one permits a deviation in the 24-hour period loading of the railroad from its average 24-hour level in the range of $\pm 3\sigma_A$, it is obvious that in these conditions the technological reserve is not needed, for $R = 0$. As the limits of these deviations decrease $\pm \Delta$ the value of the TRPV increases.

To determine the nature of this relationship and its influence upon the norm of the TRPV it is necessary to perform a statistical modeling of the 24-hour value of the freight handling resources over a large span of time. Analysis of the obtained data has demonstrated that in the course of a month there may be a surplus of freight handling resources during their 24-hour formation in relation to the average level of the value and their shortage during a 24-hour reduction of freight handling resources as opposed to the average level that is less than Δ . The shortage of freight handling resources, which occurs during individual 24-hour periods, can be partially made up by the surplus that built up during the preceding 24-hour period. When there is no surplus or when the surplus is being used, a portion of the freight handling resources that are short can in a given month be unreplenished.

The obtained data have made it possible to establish a dependency of the monthly unreplenished shortage of freight handling resources, which has been referred to the value σ_A , -r from the accepted permissible loading deviation from the average 24-hour period level, which is also referred to the value σ_A , - Δ , which reflects the needed amount of TRPV (Fig. 4). In this regard the level of reliability was greater than .9.

The dependency demonstrates that if one could maintain the 24-hour loading of the railroad in strict accordance with its average 24-hour value ($\Delta = 0$), a large TRPV would be needed: $R = r\sigma_A = 10.5\sigma_A$. As

Δ increases from 0 to .6 there is a sharp reduction in the value of the TRPV. As Δ increases further the reduction in the TRPV takes place more slowly. Nonetheless, even when $\Delta = 1.5$ the value of the TRPV is nearly zero.

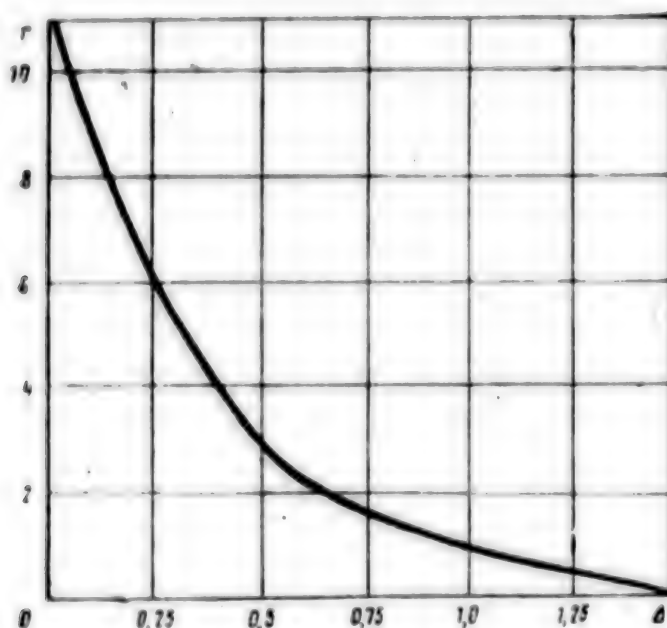


Fig. 4

The value $\Delta = .5$ corresponds to the established standard value $r = 3$. Therefore the TRPV norm, which is estimated as $3\sigma_A$, will ensure a steady loading with deviations in its 24-hour values in relation to the average 24-hour value within the limits of $.5\sigma_A$. This norm takes into consideration the deviation in the 24-hour values of loading within the limits of 3.5 to 7 percent for the average network conditions.

Thus, the results of the statistical modeling confirm the correctness of the proposed method for standardizing the value of the TRPV.

Let us study an example. The planned equipment norm for unloading gondola cars on the railroad is $m_v = 3,000$ cars, loading is $m_p = 5,000$ cars per 24-hour period, the average 24-hour norm for the receipt of idle gondola cars is $m_d = 2,000$. Based on the analysis of data for the past period it is established that the idle rolling stock, which has been freed from unloading, will contain on the average 5 percent of the cars that are out of commission and unsuitable for loading. The idle cars received from other railroads will comprise on the average 15 percent of such cars and 10 percent of the cars that are not suitable for loading because of commercial malfunctions. In accordance with this $m_b = .05 \times 3,000 = 150$ cars; $m_g = .15 \times 2,000 = 300$ cars; $m_k = .10 \times 2,000 = 200$ cars; $m_e = m_b + m_g = 150 + 300 = 450$ cars; $m_{zh} = m_k = 200$ cars.

An estimate of the TRPV norm as one of the indicators for the technical standardization for the given conditions is done as follows. The total volume of car traffic is estimated

$$m_A = m_v + m_d + m_b + m_g + m_k + m_e + m_{zh} = 3,000 + 2,000 + 150 + 300 + 200 + 450 + 200 = 6,300 \text{ cars.}$$

The value σ_A is determined (by processing observation data and estimating the root-mean-square value or according to the graph in Fig. 2). In this case according to the graph we determine $\sigma_A = 500$ cars. We established the TRPV norm: $R = 3\sigma_A = 3 \times 500 = 1,500$ cars.

In this case the permitted deviations in the 24-hour values of loading will be within the limits of $.5\sigma_A = .5 \times 500 = 250$ cars, or 5 percent.

If all idle cars that were unloaded and received from other railroad lines were in working order in both a technical and commercial sense, then $m_b = m_g = m_k = m_e = m_{zh} = 0$, then $m'_A = m_v + m_d = 3,000 + 2,000 = 5,000$ cars and $\sigma'_A = 450$ cars, and the TRPV norm would be $R = 3 \times 450 = 1,350$ cars, i.e., 150 cars less.

In this manner the TRPV norm for the entire railroad when standardizing the maximum permissible amounts of loading deviations depends upon the quality of the operational work in supplying the railroad with freight handling resources and the quality of the freight handling resources, i.e., the percentage of cars that are out of commission in a technical and commercial sense.

The quality of the operation work in supplying the railroad with freight handling resources is characterized by the degree of stability in unloading and dispatching idle cars and is quantitatively reflected in the indicators σ_c and σ_d . The value is established on the basis of processing statistical data and can be planned by taking into consideration the corrective coefficients.

The quality of freight handling resources is characterized by the indicators $\sigma_b, \sigma_g, \sigma_k, \sigma_e, \sigma_h$, the value of which is established in a similar manner. The generalized characterization of these factors can be found in the indicator σ_A . Improving the system for managing freight handling resources, reducing the percentage of cars that are out of commission in a commercial and technical sense results in a decrease in the value of this indicator, i.e., a rise in the level of stability in the formation of freight handling resources and a reduction in the size of the TRPV.

The maximum permissible sizes of loading deviations during periods of an increase and decline in freight handling resources Δ depend, on the one hand, upon the volume of mandatory loading and, on the other hand, upon the possibilities to make up permitted undershipments on the railroad (capacities of loading and unloading fronts, the floor space of

warehouses, etc.)). Strengthening the freight handling management of the railroad and developing loading and unloading fronts also ensure a reduction in the TRPV norm by increasing the permissible value of the sizes of loading deviations.

Several considerations should be noted concerning the procedure for using the technological reserve of idle cars. Existing rules make it possible to use the TRPV almost as a working park, while formally transferring these cars to the non-working park at the end of the accounting 24-hour period. For this reason the railroad really has a working park of idle cars, which differ from that which is accounted for. As a result there is distortion in the indicators for the use of an idle car, which complicates the analysis of the operational work. In addition, the railroads are not motivated to reduce the size of the reserve. On the contrary, they try to make the reserve as large as possible. In this manner the existing procedure for using the TRPV does not stimulate improving the quality of the use of rolling stock.

Since the technological reserve of idle cars is intended to compensate for the 24-hour irregularity in the formation of freight handling resources, it would be expedient to consider a car in the non-working park only when it has been in the reserve no less than one 24-hour period. However, this procedure somewhat worsens maneuverability of the railroad in using freight handling resources and diminishes the sphere for using the technological reserve.

To improve the use of rolling stock it is advisable to include the TRPV in the working park of idle cars, while considering this increase in the park as a standard value intended to eliminate 24-hour irregularity. In accordance with this one must also standardize the monthly technical assignments for the park and railcar turnover. In spite of a slight reduction in the indicators for using idle cars, they will reflect the actual situation, which will improve the opportunities for analyzing the operational work and for developing effective regulatory measures. Meanwhile, the railroads, in struggling to reduce the working park and to speed up the turnover of cars, will strive to reduce the reserve that is included in the working park.

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1980

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RAILROAD

BRIEFS

NEW BAM PASSENGER TRAFFIC--Passenger train traffic has been inaugurated on the West Section of the BAM from the Iena to the Kunerma Station, which is located at the 262nd kilometer of the main line, in the foothills of the Saykal Mountain Range. *[Text]* *[Moscow EKONOMICHESKAYA GAZETA in Russian No 39, Sep 80 p 2]* 2384

LOCOMOTIVE REPAIR PLANS--D. Zotov, Chief of the Transport Department, USSR Gosplan, responds as follows to the article "Where Should Locomotives be 'Treated'?" (*EKONOMICHESKAYA GAZETA* No 29) *[in italics]*: At the request of the Ministry of Railways, the Promtransniprojekt Institute of USSR Gosstroy has been entrusted with the assignment of developing in 1981, along with the participation of the ministries and departments concerned, a schematic plan for the development and placement of an inter-sectorial production center for repairing the rolling stock of industrial railroad transport. This will permit us to regularize the organization of plant repair of cars and industrial-type locomotives, as well as diesel engines and spare parts for them. *[Text]* *[Moscow EKONOMICHESKAYA GAZETA in Russian No 39, Sep 80 p 9]* 2384

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OCEAN AND RIVER

LARGER PASSENGER FLEET NEEDED FOR THE UKRAINE

Kiev RABOCHAYA GAZETA in Russian 14 Oct 80 p 2

[Article by M. Garagulya, chief of the rayon administration of passenger transport of the Dnepropetrovsk river port, entitled: "Comfortably on All Ships".]

[Text] The river fleet wants to carry passengers. There are possibilities for a model organization of the operation of this transport. It is necessary only to deal with us wisely.

The small tonnage ships of our Dnepropetrovsk river port serve passengers on a relatively short route - 48 kilometers down river to the Orel canal that is at Samar, and 24 kilometers up river to Dubovaya Roshcha. The water area under our jurisdiction is not large. However, the problems worrying us are common to many ports in the basin.

The popularity of river transport is growing. Passengers want to travel on ships in comfort. Who, at the peak hours, likes to get to their rest or home in a crush? A passenger capacity of 150 persons per ship already is unsuitable. Small tonnage ships of the "Kazbek" type are needed on which each of 350 passengers will have an individual seat.

We have spoken about this more than once. Such ships are being built in the republic. The planners and suppliers of the Main Administration of the River Fleet in the Council of Ministers of the Ukrainian SSR certified that there will be a modern fleet for us. But, the navigation season is ending and there are no replacement ships.

We think that the inventory of ships in the fleet needs to be enlarged without delays. It is advisable that planners together with suppliers organize a study of the demand. Workers on this study should know not only to whom, but how many and what ships are necessary. They are obligated to guarantee the delivery of new equipment to Dneper basin carriers.

Unfortunately, the number of cases of the transportation of passengers without tickets has not been reduced. Of course, free-loaders occasionally are punished. But, is it really better to take care of all of them? Let us think seriously about the prevention of free-loaders. For this, in my opinion, it would be necessary to

activate inspection departments. Inspections, as is known, have not only a monitoring, but also an educational character. They must begin with a breakthrough in the willingness of the whole personnel staff of the ships to serve the passengers of the river fleet of the republic irreproachably.

[Comment on above article apparently by the editors of RABOCHAYA GAZETA]

To the Department of Construction, Transport, and Urban Economy:

The "Think and Decide!" division pays constant attention to the problems of the organization of passenger service in transport. We already have written about the improvement of the efficiency of passenger service and the elimination of violations in the sale of tickets in aviation ("The Empty Seat" - 15 July this year) and on railroads ("Tickets Please" - 6 August this year). M. Garagulya, today, raises serious questions.

On the Dnieper basin, the roadstead team of Rabochaya Gazeta, the transport militia department of the Ministry of Internal Affairs of the Ukrainian SSR, and the OBKhSS [The Department for the Struggle Against Embezzlement of Socialist Property and Profiteering] have verified the observation of laws governing the transport of passengers and commerce on fast ships in the ports of Dnepropetrovsk, Zaporozh'ye, Kherson, and Odessa.

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OCEAN AND RIVER

REPAIR OF A BULK TANKER: DOCUMENTS AND COMMENTARY

Moscow MORSKOY FLOT in Russian No 10, 1980 pp 34-35

[Article by Special Correspondent V. Merem'yanin: "History of One Repair Job"]

[Text] According to the repair schedule approved by the "Yuzhflot" Association (GKHO), the bulk tanker "Marshal Rokossovskiy" of the Novorossiysk Steamship Line was to have tied up at a berth at the Il'ichevsk Ship-Repair Yard imeni 50th Anniversary of the USSR on 1 June 1980.

From data on the vessel the bulk tanker "Marshal Rokossovskiy" of the Novorossiysk Steamship Line was built in 1976 at the Shipyard imeni Paris Commune in Gdynia (Poland). It has a length of 244.5 meters, a width of 38.7 meters, and a height of 22 meters, its dead weight is 105,000 tons, and it has a crew of 43 (while in operation) and of 31 (while under repair).

During the second half of March the question was discussed about the possibility of the bulk tanker taking on a cargo of grain in Canada. Following its unloading, the ship was to be ready to be placed under repair on 15 June. However, after a delay, the Il'ichevsk Ship-Repair Yard changed its mind and indicated its readiness to take on the bulk tanker as of 1 June 1980. In view of this circumstance, the bulk tanker was assigned to carry a cargo of oil. This subsequently complicated its preparation for repairs, it is true, but the schedule set by the yard and other echelons of the USSR Ministry of the Maritime Fleet required that precisely this schedule be followed.

From a radiotelegram of 26 May 1980 addressed to Il'ichevsk, to Port Captain Khlebnikov, to Meshkov of the Administration for Maritime Transportation and Movement, and to [director] Rogulin of the ship-repair yard; to Novorossiysk and group dispatcher Korolev: We will arrive at the Il'ichevsk Roadstead at 1300 hours on 26 May 1980. For a more rapid preparation for repairs, it is necessary that we complete the washing out of our tanks and that we follow this with the pouring off of this wash water. For this purpose, the tanker "Grodno" will arrive alongside on 27 May to take off this wash water. In view of the unfavorable weather, we request that you see to the carrying out of this operation at either an internal roadstead or at a pier, that is, if it turns out to be impossible to transfer this wash water to the "Grodno." Signed: Captain [V.] Vaverov.

The weather turned out to be excellent. The wash water was transferred off to the Novorossiysk tanker "Grodno" and the crew of the "Marshal Rokossovskiy" invited aboard the commission of the ship-repair yard.

Extract from the formal document on the decontamination of the vessel: We hereby confirm, this to Captain Vaverov on 29 May in the Port of Il'ichevsk, that the amount of gas in the air does not exceed 0.3 mg to l. The ship is fully decontaminated and ready for repairs at the Il'ichevsk Ship-Repair Yard. Signed: Senior First Mate L. Pozolotin, Senior Mechanic V. Drugalya, Second Mate Yu. Demidenko, and Fourth Mechanic V. Nenashov.

A commission from the ship-repair yard arrived aboard the ship, which was spending its second day in the roadstead.

Extract from the formal document on the acceptance of the ship for repairs, this dated 30 May 1980: 1. Tanks 2A (starboard side) and 3A (starboard and port side) have not been decontaminated. 2. The engine room still has a residue of frozen water in it. The water is to be removed and the area wiped dry. Frozen water residue is to be removed from engine room reserve tanks and the tanks wiped dry. Following fulfillment of these instructions, the areas are to be shown to the commission once again. Signed: Foreman Istomin of the Il'ichevsk ship-repair yard and Deputy Chief Bilyk of the Militarized Guard Detachment.

The crew headed the comments of the commission and began the elimination, as they say, of "the shortcomings noted." This work was completed within 5 days.

From a telephone message of 3 June 1980 addressed to Il'ichevsk and to Ship-Repair Yard Director Regulín and to Meshkov of the Administration for Maritime Transportation and Movement. Request that you send aboard ship, this at 1200 hours on 3 June 1980, a commission composed of ship-repair yard representatives, a fire inspector, a chemical laboratory technician and other people necessary for acceptance of the vessel for repairs. Signed: Captain Vaverov.

Neither an oral or a written reply to this telephone message was ever made. Repeatedly, the captain used his radiotelephone to request a reply to his message from the ship-repair yard dispatcher. "There is no place to put you," one of the duty dispatchers said.

Actually, there was no berth available for the bulk tanker "Marshal Rokossovskiy." Standing in the drydock designated for it was a vessel belonging to another government department, a ship which had been given to the Il'ichevsk Ship-Repair Yard to repair on the basis of instructions from the USSR Ministry of the Maritime Fleet. The ship being repaired was an important one. It was thought that this vessel would leave the drydock and set off for sea on 1 June 1980. This was why the ship-repair people did not allow the "Marshal Rokossovskiy" to take on grain in Canada and thus be tardy in arriving at Il'ichevsk by 15 June.

No one had bothered to look ahead and to determine precisely the time the other ship would be under repair. It finally left for sea 20 days after the repair period set for it. Evidently, this was the explanation for all of the red tape and delay connected with placing the bulk tanker under repair.

On 7 June, the "Marshal Rokossovskiy" was hauled by the stern into a pier at the ship-repair yard. On 7 and 8 June, [captain] V. Vaverov requested the yard to send a commission on board to accept the vessel for repair. The commission never showed up. On 9 June, Foreman Istomin came on board. He stated that the commission would get there on 10 June but would not reply to the question as to why it had failed to come sooner....

Extract from the "Regulations on the Repair of Vessels at Yards of the USSR Ministry of the Maritime Fleet," Paragraph 4, Section 8. Upon conclusion of work connected with preparation of the vessel for repair, the ship is then turned over to the yard. When the ship is ready for repair and on the day it arrives at the yard, representatives of the yard together with representatives of the customer are to sign a formal document in accordance with Appendix 10. The date this document on the acceptance of the ship for repair is signed is to be considered the beginning of ship repairs. In the event that, in the course of its inspection, the vessel is found to be unready for the beginning of repair work, a note to this effect must be placed in the concluding portion of the formal document. The ship's captain is then obliged, following fulfillment of the commission's requirements, to offer the vessel up for inspection a second time. If this is done, the ship is to be considered as having been accepted for repair in accordance with the formal document.

This directive of the USSR Ministry of the Maritime Fleet is understandable and absolutely clear. It was supposed to be binding on the actions of both the administrators of the bulk tanker and the representative of the Novorossiysk Ship-Repair Yard in Il'ichevsk, N. Moshko.

An extract from the minutes of gas analysis No 96, dated 9 June 1980, made on board the motor ship "Marshal Rokossovskiy"...the concentration of petroleum product fumes in the air (0.1 mg to 1) is within acceptable norms. Signed by a laboratory worker (the signature cannot be made out).

The ship-repair yard commission came aboard ship not on 10 June, as the foreman had stated, but 1 day later. No one considered it necessary to explain the reason for the tardiness.

An extract from the document on the acceptance of the ship for repairs, dated 11 June 1980.... The motor ship "Marshal Rokossovskiy" is to be considered as having been accepted for repairs by the Il'ichevsk Ship-Repair Yard as of 7 June 1980. Signed: N. Moshko, representing the Novorossiysk Steamship Line, Captain V. Vaverov, Senior Mechanic V. Drugalya, and Foreman V. Gudkov, representative of the Il'ichevsk Ship-Repair Yard.

With this, one might figure that everything had been complied with. However, the history of the repair job continues, inasmuch as the formal acceptance did not become the official document but lies there on the desk of the captain, a useless piece of paper. Repair yard representative V. Gudkov, without any explanation, refused to sign the document. Not until 1720 hours on 13 June 1980, during a phone conversation with the captain, did he explain that "I will not sign the document. The ship will be accepted for repairs after it has been placed in dry-dock."

A copy of Letter No 31/299 of 16 June 1980, addressed to Captain V. K. Vaverov of the motor ship "Marshal Rokossovskiy" and to N. V. Moshko, representative of the Novorossiysk Steamship Line. With this letter I am informing you that the "Marshal Rokossovskiy" will be accepted for repair by the Il'ichevsk Yard the moment that the vessel is placed in drydock. This is due to the fact that all repairs and attendant work on the ship can only be done in drydock. Signed: V. Prokushev, Acting Chief Engineer of the Il'ichevsk Ship-Repair Yard.

It is fully understandable why such a letter did not satisfy the customer and the ship's administration. The correspondence which resulted seemed to snowball. Recipients of letters in Il'ichevsk, Odesa, Novorossiysk and Moscow read letters and telegrams and made long-distance calls. Dozens of responsible workers of our branch of industry were drawn into this correspondence and these phone conversations.

An extract from a radiogram of 17 June 1980 addressed to Moscow and Chief Engineer Merslov of the "Yuzhflot" Association and to Novorossiysk and Chief Engineer Kryshyn of the Novorossiysk Steamship Line. "A second commission did not come aboard ship until 10 June. Its members did not put forth any comments which might have mitigated against the acceptance of the ship for repair. But the formal document on the acceptance of the ship for repairs has yet to be signed. The ship-repair yard is not even thinking of signing it until the ship is placed in drydock, which will not be vacated until 20 June. In view of the fact that the Il'ichevsk Ship-Repair Yard has failed to fulfill paragraph 4, section 8 of the "Regulations on the Repair of Vessels at Yards of the USSR Ministry of the Maritime Fleet" and has failed to send a commission on board in time, the ship is to be considered as having been accepted for repairs as of the time a second conclusion of the commission was made, i.e., as of 1200 hours on 5 June 1980. Signed: Captain Vaverov."

A long silence followed. There was no word from the ship-repair yard or the ship-repair yard service of the Black Sea Steamship Line, nor from the "Yuzhflot" Association. It was not until 27 June 1980 that the "Marshal Rokossovskiy" was placed in drydock and repairs begun. By not having signed the official document on the acceptance of the vessel for repair, the administrative board of the ship-repair yard left the ship's command without any legal rights, whether or not it had so intended. The bulk tanker's representatives had no right to demand that this or that work be done; they could only request it. Such a situation favors the ship-repair yard. In fulfilling individual requests made by the ship, the yard improves its over-all production-finance indicators. The yard thinks only in terms of whether or not the repair order was completed on schedule or ahead of time. From this stem its moral and material stimuli.

The ship-repair yard did not want to accept the responsibility for the 1-month nonproductive layover of the large-tonnage bulk tanker. Having adopted this parochial attitude, it did everything in its power to get in touch with all echelons and to assure everyone that it had nothing to do with the delay connected with placing the ship under repair. The yard's main trump consisted of ill-fated objective factors. The party guilty of this delay was never named. It goes without saying that the loss in profits incurred as a result of the ship's idleness should be borne by the Novorossiysk Steamship Line. That is what did happen.

A radiogram from Moscow, No YUF 13/1153, dated 8 July 1980 addressed to: Il'ichevsk, to Director Rogulin of the ship-repair yard, to Captain Vaverov of the "Marshal Rokossovskiy"; Odessa, to Chief Engineer Bondarev of the Black Sea Steamship Line; and to Novorossiysk, to Chief Engineer Kryshyn of the Novorossiysk Steamship Line. In connection with circumstances which had nothing to do with the ship-repair yard and which were caused by the unplanned drydocking (at the instruction of the USSR Ministry of the Maritime Fleet) of a vessel belonging to another customer, you are to sign the formal document on the acceptance of the "Marshal Rokossovskiy" for repairs the moment the ship is placed into drydock. Signed: Chief Engineer Merslov of the "Yuzhflot" Association.

Let us sum up the results. A circumstance developed at the ship-repair yard over which the yard had no control. Director A. Rogulin told our "Morskoy Flot" correspondent that the yard was carrying out the instructions of a higher organization and was not responsible for the tanker's standing idle. Chief V. Zubritskiy of the Black Sea Steamship Line Ship-Repair Yard Service was equally as categorical in his reply: "Yes, it is true that the bulk tanker was idle for an entire month. But this is not a typical case. No one is responsible for it."

But that is not so. A 1-month demurrage of a large-tonnage vessel is testimony to the lack of organization of people responsible for its repair, to their lack of flexibility in the analysis of the situation which developed, to poor management.

Not a word need be said as to the "typicalness" of the event. We only hope that even non-typical instances of ship demurrage will be rare exceptions in the work practice of our ship-repair people.

This history of the repair of the bulk tanker "Marshal Rokossovskiy" will, we hope, cause our ship-repair workers to give some thought to shortcomings in their style of work and to do away with situations in which we can clearly see loss of profits to the state resulting and in which we only vaguely see the faces of those guilty of this lack of management.

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9643

CSO: 1829

OCEAN AND RIVER

DELAYS IN HANDLING GRAIN SHIPMENTS

Moscow VODNIY TRANSPORT in Russian 9 Oct 80 p 2

[From an article by V. Lisakov entitled: "Grain and the River"]

[Excerpt] In the 1980 grain hauling season, many of these problems were revealed and were aggravated in the extreme. It is evident, after all, that the fleet neither has available the ships which should be powerful, fast, maneuverable and capacious, nor as many of them as it could put on the delivery of grain; and that it will continue to operate as today at reduced capacity because the shore is not prepared to service it quickly. The practical situation is that the productivity of the piers of clientele in loading grain is twice as high as in unloading. That is the way it is on the Volga, the Don, the Upper Irtysh, and the Ural rivers. On the Dneper, the contrast is still more striking. As a result, the profitability of fleet operations in hauling grain is in doubt. Let us note the most economical form of transport. At one stroke, 5,000 tons of grain are loaded into the holds of a "Volga-Don" type ship. Surely the capabilities of this remarkable ship must be used widely. "Wisely" means--for the state. There can be no other interpretation. All this we understand, and we are prepared to demonstrate with numbers our position on the cost of an hour of idleness of such a ship. Toward the end of the navigating season so many idle hours accumulate that it is time to ponder if our zeal about the interests of the state have not become idle conversation. Fleet idle time at clients' piers is becoming more and more backed up. This will continue as long as the crews who bring modern motorships into an unloading port are met by yesterday; that is, by obsolete equipment and unproductive technology.

The current navigation season reminded us sharply of another of our troubles; namely, the disagreement and disunity in the actions of transport workers at junctions. First, at Perm' it was decided to transship the grain from the water to the railroad and thereby to reduce in a significant stage the strain on the steel main lines. The Perm' department of the Sverdlovsk railroad, regarded as rational and dedicated to the interests of the state, thought the rivermen were very peculiar, and did not provide a docking place for joining up with the rolling stock. As a consequence, in expectation of the availability of rail cars, a large fleet was amassed in the port. Sometimes up to five "Volga-Don" ships were gathered in line. In all, ships were idled for 66 days. In the holds of two of the "Volga-Dons" a temperature rise began and the threat of grain spoilage was created. Both ships were quickly readressed by other grain elevators. Such is the price of

strategic and tactical miscalculations in the administration of transport and the disagreements in action of the departments participating in it. It is unfortunate that similar situations have been taking place in other ports, especially along the Upper Volga.

Grain, which is given to us today with such difficulty, needs for itself, as never before, a paternalistic treatment. Every unnecessary hour of idleness in unloading is a perceptible loss, and means that the ship will be late at a subsequent port for loading. These losses are material. But no less significant are losses of sensitive morale. The crews of the ships participating in the transport of grain stood up in the period before the Congress of Soviets and took on increased obligations. Their faithfulness to their word, as for instance the Don rivermen from the ship "Sukhona," is being verified by strenuous and creative work - they gained minutes and hours on the passages, and at the piers they do not sit on their hands, they assist in the unloading, and they clean out the holds themselves. But diligence and enthusiasm give in to stagnation.

Who but elevator workers are interested in receiving as much grain as possible? In clear sunny weather, they display such interest; what is more, they hurry the rivermen. But, hardly can the sky become clouded or rain begin and all work on the piers is discontinued. This happens even on ships foresightedly fitted with special openings in the hatch covers. Officials persist in this despite instructions ("The Regulation of the Internal Water Transport of the USSR," Section III, article 48) which bind them to carry out unloading operations in poor weather.

For several years longshoremen of the West Moscow port have asked supervisors of milling combine No. 4 to process the fleet in rain. But this, under the best of pretexts, was refused. Only after a news paper article ("Lawsuit on Departmental Limits" - Vodnyy Transport 2 Sept.) did the editors receive an answer from Z. Damayev, the director of the enterprise, who reported that an experimental unloading will, after all, be carried out. To him, this is what the state document requires. Meanwhile, because of rain, in the past year here more than 25 thousand ton-days were lost - today it is more. How hard this is on the crews who, not by their own fault, in having to stand by, have lost their position as leaders in the competition and found themselves among the laggards.

Can rivermen somehow influence the client? They can. First of all by example. The personnel of the capital's southern port and Ural'sk already have introduced transshipment complexes (created, we emphasize, according to their own understanding) which sharply increased the productivity of labor in unloading grain, and reduced idleness in the fleet and in rail cars. This experience, verified in practice, is worthy of attention and propagation.

9136

CSO: 1829

OCEAN AND RIVER

BRIEFS

OCEAN RESEARCH--Vladivostok--On account of the modernization of the motor ships of the "Reka-More" class, which was carried out with the aid of the scientists of the Far Eastern Polytechnical Institute imeni V.V. Kuybyshev, it was possible significantly to extend the navigational range of these vessels. As a result, during the navigational period the Amur river transport system effected R 3 million worth of savings in national-economic freight transport. The effective support lent to the transport workers results from the concentrated efforts expended by the Institute on the implementation of the "Ocean Research, Protection and Exploitation" Program. This has become the principal subject for the students' design bureaus, the laboratories and the departments. The subject comprises development of means of exploiting the Pacific Ocean, of installations for the desalinization of sea water, and of automated fleet-control systems. Already, unique instruments and equipment have been produced for the study of the chemical, physical and biological processes in the depths of the sea. [Text] [Moscow IZVESTIYA in Russian 11 Sep 80 p 3] 8760

HIGH-VOLUME PASSENGER TRANSPORT--Khabarovsk, 31 Aug--This summer, the ships of the Amur steam-navigation system transported 2 million passengers. Even though navigation commenced half a month later than usual, it will reach a record level: The river transport workers are expecting the 3 millionth passenger. At present, 70 passenger and tourist lines are operating on the Amur River, most of which operate the swift "Meteors" and "Rockets", the high-speed motor ships of the "Voskhod" class and other modern ships. A fleet is being developed in the area of the Baykal Amur Railroad as well. [Text] [Moscow PRAVDA in Russian 1 Sep 80 p 3] 8760

NEW MARINE CHANNEL--Vormsi Island, Estonian SSR--A marine channel has been built in the Moonzund Archipelago on the west coast of Estonia. The channel was laid through a shallow part of the sea and it connects with the mainland one of the archipelago's large islands--Vormsi. Thus it will be possible--with the aid of large ice-breaker ferries--to establish year-round contact with the mainland. [Text] [Moscow IZVESTIYA in Russian 28 Sep 80 p 1] 8760

INTRODUCTION OF EFFICIENT DIE--At the Odessa Ship-Repair Yard imeni 50-letie Sovetskoy Ukrainy, the efficiency experts introduced a multiple-function die for the production of brackets (collars) for pipelines. On account of the introduction of the new press tool, working conditions, labor productivity, and the quality of the brackets produced are improving. The tool also serves to promote material economy. [Text] [Moscow VODNIY TRANSPORT in Russian 14 Oct 80 p 2] 8760

NEW OIL-ORE CARRIER--Mikhailov--The latest large-capacity oil-ore carrier in the series of ships of the "Boris Butoma" class, which is being produced at the Nikolayevsk "Okean" Shipyard, was named "Gamal Abdel Nasser." The new motor ship of the Novorossiysk Shipping Line was named in commemoration of the first president of the Arab Republic of Egypt, a prominent figure in the Arab national liberation movement. [Text] [Moscow VODNIY TRANSPORT in Russian 4 Oct 80 p 4] 8760

NEW UNLOADING EQUIPMENT--Leningrad--In accordance with a plan of the Central Technical Design Bureau of the Ministry of the River Fleet, the experimental-research plant of the Leningrad Institute of Water Transport built a special launch distinguished by high speed and good maneuverability and capable of negotiating the large lakes. What with the streamlined design of the ship, its modern radio-navigation equipment and the high level of comfort, there are excellent resources regarding efficient work and recreation of the crew. At the request of the Leningrad port of the Northwest River Shipping Administration, the plant presently has begun production of two extraordinary devices that are intended to raise the level of labor productivity at the moorages. In the near future, the dock workers will receive a unique pneumatic belt conveyor for processing ships carrying apatite. And the mineral building materials will be transhipped by a special swing chute. [Text] [Moscow VODNIY TRANSPORT in Russian 11 Oct 80 p 2] 8760

NEW RIVER TRANSPORT SYSTEM--As a result of the construction of a river transport complex--the largest in the Baltic area--it will be possible to extend the navigational periods and to increase the passenger and freight transport volume. The first section of this complex--a ship-repair yard erected in the Daugava estuary--has been put in operation. "This year, our freighters have for the first time sailed out on the high seas," said the director of the Latvian river navigation system, V. Burkhanov. The sea routes for passenger ships are being extended as well. The establishment of the complex on the banks of the Daugava is bound up with a sharp increase in Latvia's river freight transport. This year alone, the cargo volume delivered by the ships will exceed last year's volume by half a million tons. This will make it possible to release 60,000 railroad cars for other operations. [Text] [Moscow NEDELYA No 38, 15-21 Sep 80 p 2] 8760

RIVER TRANSPORT BY CATAMARAN--Gor'kiy--With great interest, Gor'kiy citizens recently observed an unusual ship that made its appearance at the piers of the river port. This was the passenger ship "Volga 1" heading the new series of lake catamarans. It was designed by Leningrad designers and

constructed by Astrakhan shipwrights. The motor ship has two decks. The lower deck provides a spacious, comfortable salon designed to accommodate 130 people; on the upper deck, there is a covered space with 135 seats. On short voyages, the ship can take aboard twice as many passengers. As regards its function, the new catamaran represents an original river "bus" that will be operating on both suburban and intra-city routes; it will also be used for pleasure trips and excursions. The vessel is steady in the water and is distinguished by good pitch-and-roll stability; it is capable of weathering even the heavy storms that frequently occur on the Volga reservoirs. Upon completion of the test runs, the catamaran will go into service on the passenger transport routes. [Text] [Moscow PRAVDA in Russian 1 Oct 80 p 6] 8760

KERCH' SUPERTANKER CONSTRUCTION--Kerch' (Krymskaya Oblast), 15 Aug (TASS). The oil-tanker fleet has been augmented by a series of supertankers. Workers of Zaliv Shipyard imeni B. Ye. Butoma today ceremonially transferred the last ship of this type, "Sovetskaya neft'," to the sailors. Its load-carrying capacity is 150,000 tons. "Sovetskaya neft'" is an ordinary supertanker. The first of the series--the "Krym"--was built in 1975. After it followed the "Kuban'," "Kavkaz," "Kuzbass" and "Kribass." The "Sovetskaya neft'" was built one-third faster than the lead ship, and its cost has been reduced by almost 10 million rubles. Kerch' shipbuilders are using their experience in building the supertankers during the construction of a new series of large oil-carrying ships of the "Pobeda" type. The enterprise's workers have given their word to launch the first of them into the water ahead of time, by the day the 26th CPSU Congress opens. [Text] [Moscow PRAVDA in Russian 16 Aug 80 p 1] 11409

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